Putting it All Together

INTEGRATING DRY NEEDLING AND NEURODYNAMICS INTO CLINICAL PRACTICE

Objectives

- Apply diagnostic and management strategies of the clinical reasoning process to effectively and efficiently manage patient outcomes
- Apply pain sciences within the framework of clinical reasoning to make informed decisions regarding dry needling and neurodynamic manual interventions

Objectives

- Apply the clinical reasoning process to understand the role and benefit of dry needling in effective management of a patient with complex pain complaints
- Apply the clinical reasoning process to understand the role of neurodynamics in effective management of a patient with complex pain complaints
Patient Case

- 46 year old female 6 months s/p L SLAP repair
- Chief complaint:
  - L anterior shoulder pain 5/10 extending to mid-humerus with occasional paresthesias in the L hand
  - T shoulder pain related to T hand symptoms

Initial onset:
Novice golfer who felt achiness in the shoulder following the 9th hole approximately 6 months prior.

Mechanism:
Had a non contact powerful swing and felt immediate sharp pain in the back of the upper arm and shoulder that gradually worsened in the next 24 hours.

Medical Consultation:
Intra-articular cortisone injection which the patient reported as being “very painful” and a referral to PT

Patient reported prior PT Interventions:
shoulder strengthening exercises x 3 months with no functional improvement secondary to pain → surgery for repair

Clinical Reasoning Categories

- Activity Limitations
  - Minimal to no use of L UE
  - Only able to write and carry light objects
- Participation Restrictions
  - Unable to cook, clean or participate in recreational activities
- Patients Perspective
  - Motivated
  - Adaptive coping mechanisms
  - (-) Fear avoidance
Clinical Reasoning

- Pathobiology
  - Target Tissue
    - MTrP
    - Labrum
    - Axillary incision
  - Pain Sciences
    - Peripheral nociceptive
    - Peripheral neurogenic
    - Peripheral sensitization
    - Central sensitization
    - Output mechanisms
      - Sympathetic
      - Neuroendocrine
      - Motor

Pathobiological Pain Mechanisms

- Peripheral Nociceptive:

<table>
<thead>
<tr>
<th>Support</th>
<th>Negate</th>
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</thead>
<tbody>
<tr>
<td>Painful limited shoulder ROM</td>
<td>Physiologic time for normal healing of labrum and incision</td>
</tr>
<tr>
<td>Strong / painful lateral rotation</td>
<td>Distal referral of symptoms (paresthesia)</td>
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</tbody>
</table>

- Peripheral Neurogenic

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<tr>
<td>UE paresthesia</td>
<td>Non-dermatomal distribution of symptoms</td>
</tr>
<tr>
<td>ULTT</td>
<td>Cervical rotation ≥ 60 degrees (−) Spurling (−) Cervical compression (−) Cervical distraction (−) Neurological examination (−)</td>
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Pathobiological Pain Mechanisms

- Peripheral Sensitization

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<th>Negate</th>
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<tbody>
<tr>
<td>Mechanical hyperalgesia</td>
<td>(shoulder, upper trapezius)</td>
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<tr>
<td>2nd Mechanical hyperalgesia</td>
<td>(brachium, forearm)</td>
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<tr>
<td>Reproduction of symptoms with MTrP palpation</td>
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Clinical Reasoning Categories

- Source of Symptoms / Impairments
  - Active MTrP – infraspinatus, subscapularis,
  - Latent MTrP - L anterior / middle scalene, L upper trapezius, L cervical paraspinals
  - Impaired shoulder ROM, strength, motor control
  - Impaired neuromobility (neurodynamics)
  - Impaired G-H and scapulothoracic accessory motion

- Contributing factors
  - Axillary scar
  - Immobilization

Range of Motion

- L Shoulder AROM:
  - Flexion: 100deg
  - Abduction: 45deg
  - IR: 10 deg
  - Medial rotation: 40 deg

- L Shoulder PROM:
  - Flexion: 110deg
  - Abduction: 60deg
  - Lateral rotation*: 20deg
  - Medial rotation*: 40deg
  - "Slow muscle guarding"

- L Shoulder Resisted ROM
  - IR: strong and painful
  - All other shoulder motions strong and painless

- MMT deferred
Mobility

- JOINT
  - G-H – 2/6 post glide
  - S-T – 4/6 upward rotation
- NERVE
  - Level 1 - Upper Limb
  - Tension Test L UE (+)
  - lacks 40 deg elbow extension

PT Management

<table>
<thead>
<tr>
<th>Peripheral Nociceptive</th>
<th>Peripheral Neurogenic</th>
<th>Peripheral Sensitization</th>
<th>Central Mechanisms</th>
<th>Output mechanisms</th>
<th>Affective mechanisms</th>
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<tbody>
<tr>
<td>Active MTrP Subs, SI</td>
<td>CMETA</td>
<td>2° mechanical hyperalgesia</td>
<td>Allodynia</td>
<td>Muscle imbalances</td>
<td>Adaptive coping</td>
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<tr>
<td>Latent MTrP 2T Subc</td>
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<td>Mirror image pain</td>
<td>Scalene imbalances</td>
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<td>2/6 G-H joint mobility</td>
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Treatment

- Treatment decision algorithm
References