Pre-Operative Outpatient Physical Therapy of a Torn Rotator Cuff and Peripheral Nerve Injury Caused by Anterior Shoulder Dislocation: A Case Report
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Purpose
To investigate the effectiveness of pre-operative physical therapy (PT) management including passive range of motion, joint mobilization and exercises for a patient with both a torn rotator cuff and suspected neuropraxic peripheral nerve injury.

Systems Review
Cardiopulmonary system
- Not impaired
Integumentary system
- Not impaired
Musculoskeletal system
- Gross strength deficits and limited gross range of motion of left UE, and slight abduction of left glenohumeral joint
Neuromuscular system
- Impaired motor control of left hand and sensation of left distal UE

Background
- Due to the high degree of available range of motion of the Glenohumeral joint, it is highly susceptible to instability and injury. 98% of all traumatic shoulder dislocations are anterior.¹
- Rotator cuff injuries and peripheral nerve injuries are commonly associated with traumatic anterior shoulder dislocations.
- Very little literature on pre-operative PT.

Patient Education:
- The Patient was educated on strengthening and stretching exercises to do at home, number of repetitions/sets per day, and proper form/technique for these exercises.
- He was also educated on what to expect with rotator cuff surgery and the prognoses of that surgery

Procedural Interventions:
Therapy Session schedule
- 10 minute warm up - bicycle ergometer/patient preference
- To increase overall blood flow and warm up tissues.
- GH mobilization (grade 1-2)
- posterior/inferior/short arm traction
- Scapular mobilization
- depression/elevation/retraction/protraction
- PROM of GH joint (within limits of pain)
- AROM Exercises
- Finger
  - abduction/adduction/extension/flexion/rotation
- Wrist
  - flexion/extension/pronation/supination
- Scapular clock
  - depression/elevation/retraction/protraction
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- flexion/extension/rotation
- bicep curls (hammer curls - wrist neutral)
- Tricep extensions
- Stretching exercises
  - Wrist and finger extension/flexor stretches
  - STM of the distal left UE to control/reduce swelling and relax tight tissues
  - STM of pectoral muscles, trapezius, levator scapulae and tissues surrounding the GH joint - to decreases muscle guarding and reduce pain and improve tissue pliability.

Interventions
PT Diagnosis
- Pattern 4D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated with Connective Tissue Dysfunction
- Pattern 5F: Impaired Peripheral Nerve Integrity and Muscle Performance Associated with Peripheral Nerve Injury

Outcomes
- Patient also reported improved sensation and motor control of left distal UE.

Discussion
- The patient was only seen for a short period of time.
  - Five sessions including initial examination and re-examination.
  - The patient was unable to return for post-op rehab so we were unable to determine the effectiveness of the manual therapy on post-op results.
  - Despite the short time frame the patient did report less pain and improved sensation and motor control of his distal upper extremity.
  - Decreased pain and improved patient satisfaction has also been found in research on pre-operative PT for total hip and knee replacements.²
  - More research needs to be done on pre-operative PT management.

References

1. Due to the high degree of available range of motion of the Glenohumeral joint, it is highly susceptible to instability and injury. 98% of all traumatic shoulder dislocations are anterior.
2. Decreased pain and improved patient satisfaction has also been found in research on pre-operative PT for total hip and knee replacements.