



Orthopaedic Division
CANADIAN PHYSIOTHERAPY ASSOCIATION

Division d'orthopédie
ASSOCIATION CANADIENNE DE PHYSIOTHÉRAPIE

Level 4, 5 & Advanced Exam Case History Exam Objective Booklet

Questions to be completed following the ***Objective*** Examination

Candidate Number: _____

Candidate Name: _____

Exam Date: _____

1. Provide your main hypothesis for this patient's clinical picture. Outline in detail your rationale and justification for this hypothesis with consideration of the evidence from both the subjective and objective examination. (10 marks)

Hypothesis: P1 is an injury / disruption to the TFCC in the left wrist from the FOOSH injury. P2 is irritation of the supraspinatus and longhead of biceps tendon. This compression injury could have resulted from the original FOOSH or from development of muscle imbalances at the scapula after the immobilization and sling-like posture. P3 is due to C4/5 and C5/6 osteoarthritic (OA) facet joints as well as the hyper-tonic scapular elevators (UFT and lev scapula). The pain from the OA C4/5/6 joints has increased in frequency and intensity due to the compression forces from the FOOSH injury as well as the increased tone from the paraspinal muscles.

Rationale: MOI was a FOOSH causing compression along the entire left u/e including the wrist, shoulder, and cervical spine. P1 is articular with subjective (twisting and weight bearing) and objective findings (painful supination, flexion, and ulnar deviation AROM, PROM, PAM, and pain with weight bearing, +ve TFCC grind test and fovea test). P2's relation to P1 is the MOI and it is not necessary that these 2 pains are related as P2 could also be related to holding the shoulder girdle in a sling-like position due to the wrist pain during and after the casted period. There may also have been a pre-existing muscle imbalance in the shoulder that has exacerbated an impingement of the supraspinatus and biceps tendons. Subjective evidence includes location of the pain (anterolateral). The shoulder pain is aggravated by activities /movements above shoulder height, unable to sleep on her left side, lifting her arm away from her body. Objectively, AROM decreased Flexion, Abduction, and external rotation but normal PROM and PAM suggests a muscular component as opposed to a GH articular component. AROM and resisted testing were full, strong and pain free with scapula repositioning test of upward rotation and slight elevation. Resisted FF, Abduction and external rotation reproducing P2 confirms muscular involvement. P3 is likely from OA of C4/5 and C5/6 facet joints. This is suggested by the capsular pattern of restriction, pain reproduction with movements that compress the joints, morning stiffness, +ve response to Ibuprofen. As well, P3 is influenced by the left UFT and lev scapula. These muscles are hypertonic, probably from holding the arm/scapula in a sling-like position and have developed palpable trigger points adding to the P3 pain presentation. The muscular discomfort is reproduced by movements that place the muscles on stretch (flexion + right side bend PROM or left rotation AROM). The increased tone in these muscles may also increase the compression on the irritable facet joints.

2. State your predictive outcome, including timelines, for this patient and provide your rationale (prognostic indicators). (3 marks)

P1 will slowly heal to 80-90% over the next 12 weeks. The age of the patient is 61. There may be some degeneration present as well as a compressive trauma. TFCC has poor blood supply delaying recovery time.

P2 will heal 100% in the next 8-12 weeks once the impingement is removed with proper scapular mechanics. The chronic neck condition and the age of the impinged tendons may impede the healing process and the ability to correct the scapular mechanics.

P3 will heal to at least pre-injury status in 6-8 weeks and probably to a bit better than before the injury due to the treatment. OA changes, previous episodes of neck pain, and age (61) are negative factors. Muscle component can be resolved and facet joint movement can be improved.

3. At this point, with respect to this particular patient, are there any medical diagnostic tests that would be indicated (either now or later) or the need to refer to another health care professional? Give your rationale. (2 marks)

Referral to an RMT for Massage of the TPs in UFT and lev scap, and shoulder girdle as a compliment to her physiotherapy care.

Consider a referral to an OT to assess for potential aids for cooking and housework – to increase function while healing

Imaging may be warranted if the patient does not improve with the proposed treatment plan within 6 weeks. In particular x-rays of the cervical spine to rule in / out degenerative changes limiting progress, and US / MRI of the shoulder to rule in / out RC tear or labral pathology from the FOOSH. MRI of the wrist to rule in / out a tear to the TFCC.

Hand therapist / surgical consult if the wrist pain is not responding to the proposed treatment plan after 6-8 weeks.

Psychologist – for feelings of worry, stress, grief counseling

4. For this patient, give 2 of the most relevant physical impairments. Relate an activity limitation and participation restriction to each of the impairments. Then indicate an outcome measurement you would choose to monitor change and provide your rationale. An outcome measure already presented in the case cannot be used in this answer. (4 marks)

Physical impairment 1: Decreased supination of the left wrist

Activity limitation for physical impairment 1: difficulty holding playing cards

Participation restriction for physical impairment 1: Playing cards with family and friends.

Outcome measurement for physical impairment 1: ROM using a goniometer

Rationale for outcome measurement for physical impairment 1: Easy tool to use and track improvements of ROM. Reliable outcome measure.

Physical impairment 2: limited left rotation of the neck

Activity limitation for physical impairment 2: decreased ability to use her computer. (30 minutes)

Participation restriction for physical impairment 2:
Affecting her ability to work

Outcome measurement for physical impairment 2: NDI, PSFS

Rationale for outcome measurement for physical impairment 2: The NDI gives a good overall functional measure of her neck condition. The PSFS can capture any specific items missed by the NDI.

5. Indicate your **PRIMARY FUNCTIONAL GOAL** as it relates to the Activity Limitations and Participation Restrictions. Select 4 of the most relevant problems related to the primary functional goal you have identified. For each problem listed, include your treatment goal and the testing criteria you would use to monitor change. (6 marks)

PRIMARY FUNCTIONAL GOAL: ability to use left hand/arm for activities of daily living so she can live independently (cook, dress, personal hygiene).

PROBLEM #1 - decreased supination

Treatment goal: 80% of full AROM (70 degrees) without pain in 8-12 weeks

Testing Criteria: goniometric measurement

PROBLEM #2 – decreased ability to weight bear through left upper extremity

Treatment Goal: 80% of full weight bearing without pain in 8-12 weeks

Testing Criteria: weight bearing through hand on a set of scales (greater than 60 lbs)

PROBLEM #3 – scapular dyskinesia

Treatment Goal: to improve scapular control within 6-8 weeks

Testing Criteria: external rotation load test, scapular dyskinesia test with a weight

PROBLEM #6 – decreased mobility of the cervical spine

Treatment Goal: to improve mobility of cervical spine (3/4 to full range) pain free within 6-8 weeks

Treatment Criteria: NDI, PSFS

6. Outline in detail the management strategies you would use over the first two treatments under the following headings:

- i) manual therapy,**
- ii) exercise,**
- iii) education and**
- iv) other.**

Include your rationale for each component of the treatment.
(10 marks)

Manual therapy:

1. Passive supination gr. 2 to begin progressing to gr. 3- if tolerated with minimal pain. 30 seconds. Repeat 3-5 times

Rationale: This is the most limited wrist movement. There is pain before resistance so we will have to work with the grade 2 initially for pain modulating effect and then progress into gr. 3 – to affect resistance as long as pain is kept low. 2-3 / 10 that resolves after the 30 second rep.

2. Manual traction of the mid cervical spine gr. 3 for 30 seconds, 5 reps.

Rationale: Both IMP and SAL glides are restricted. Traction will provide a stretch to the capsular structures resulting in an improvement in both articular glides. This can also give a neuromodulatory affect to the UFT and Lev scap helping to reduce muscle tone.

ii) Exercise:

- ☐ Active ROM for Supination, flexion and extension of the wrist. 10 reps each movement 3 x a day. This will complement the mobilization technique and start to work on other limitations of the wrist. Ulnar deviation was avoided so not to compress the TFCC during the early stages of rehab.
- ☐ Active ROM of the cervical spine into Left rotation. 10 reps 3 x a day. This will complement the mobilization technique and begin working on her functional limitation.
- ☐ Scapula setting exercise: slight elevation and upward rotation. Patient was found to tolerate 10 reps before feeling irritation in the UFT. Reps were decreased to 6 – 3 sets to avoid irritation. Patient was instructed to stop the exercise if this created lasting neck pain greater than 30 minutes.

iii) Education:

Education on the potential pathology presenting in the wrist, shoulder and neck.
Discussion around expected responses to treatment as outlined in question 2.

Encourage to move the wrist and use it in ADL activities as long as pain stays low 2-3/10.

Limit shoulder movement to below 90 degrees to avoid aggravating the shoulder pathology until symptoms improve and scapula retraining has improved.

Discuss ergonomic set up for the computer station.

iv) Other:

Potentially try a wrist widget on the second treatment to see if it helps support the wrist and offload the TFCC.

7. Using the biopsychosocial framework, outline in detail your progression of subsequent treatments to discharge addressing all the identified problems and provide your rationale to return to their optimal functional level. Use the following headings:

i) manual therapy,

ii) exercise,

iii) education, and

iv) other

Include your rationale for each component of the treatment.

(10 marks)

i) Manual therapy:

Left Wrist: As the pain begins to improve incorporate manual stretching for flexion and extension, radial deviation and ulnar deviation. Progress these passive movements to stretching at end of range using gr. 3+ to 4+ mobilization techniques.

Rationale: Moving to gr. 3+-4+ is indicated as pain settles and resistance comes on before pain in order to restore full ROM. This end range grade mobilization provides a mechanical stretching effect on the articular tissues.

Cervical Spine: As ROM improves progress the traction mobilization to individual IMP or SAL glides at C4-5 and C5-6 Gr. 3 – 4 for 5 minutes during the treatment session. If tolerated grade can be progressed to 3+ and 4+. Incorporate stretching of levator scapula and other cervical paravertebral muscles as new ROM is gained in the neck.

Rationale: As the joints become less irritable progressing to direct glides will be more effective in improving ROM. SAL glides will be tolerated better initially with progression to the IMP glides last to regain the extension ROM. Joint mobilization may reduced some of the muscle tone through a neurophysiological response, however this may not be adequate and specific muscle stretches may need to be included to maximize ROM gains in the neck.

Shoulder: Gentle soft tissue massage to the biceps muscle belly, long head of biceps tendon and the supraspinatus muscle belly.

Rationale: gentle soft tissue work will help decrease muscle tone and pain in these two muscle groups. There will also be an increase blood flow locally which may aid in healing these structures.

ii) Exercise:

Wrist: Passive and active ROM exercises to increase flexion, extension, radial deviation, ulnar deviation. Initiate strengthening exercises in the available ROM progressing to full range when achieved. (all wrist movements and gripping).

During each stage of progression inclusion of exercises that help to facilitate the functional goals the patient has. ie incorporate some loading through the wrist, reaching, lifting etc. in ADL activities. This will need to coincide with the strength in the shoulder region.

Rationale: Gradual progression of ROM exercise initially to restore full movement and then progressing to strengthening exercises prescribed to meet the functional goals.

Cervical Spine: Progression of the ROM exercises and stretches for the cervical spine to gain as much mobility as we can in the cervical spine. Assess the strength of the strength of the cervical spinal stabilizers and initiate a deep cervical flexor training program if needed. This would be progressed to be included in the overall upper extremity strengthening program to restore function to her ADL activities.

Rationale: As ROM improves, we may see a deficit in cervical strength. If this is assessed clinically it would be appropriate to include it in the treatment program.

Shoulder: Once scapula setting is mastered, begin loading the pattern with TheraBand using ER movements or small arc rows. (yellow, red to green TB) goals for 2x20 reps daily before moving to the next colour. Once at green TB we should be able to initiate

strengthening for general shoulder movements. Considering her age and RC irritability we would be best to use short lever movements for abduction, flexion, extension. Add pressing movements in front and overhead. This type of strength work initially can be done daily 8-10 reps, 2-3 sets. As she tolerates increased weight move to 3 sessions a week to allow for muscles to recover from the program. During this phase we will need to ensure the strength movements are addressing the deficits still present in her ADL activities. I.e., specific lifting over head to simulate putting dishes away, carrying laundry basket, etc.

Rationale: We need to have scapula control before moving onto general strength of the shoulder and Upper extremity.

iii) Education:

Educate on the expected responses from progressing the above treatment and exercise program. Provide instructions on what to do if she has a flare up from any of the exercises.

Continue to provide information on the pathology at hand and the stage of healing we are in to assist in transition to more functional movements.

Continued education regarding computer ergonomics, and encourage other forms of exercise as the patient nears DC.

iv) Other:

Soft tissue massage may be added to help address any muscle soreness from the strength program. This could be done by PT or via referral to massage therapy. This would assist in maintaining good tissue health.

8. What 3 key terms would you enter into one search on PubMed to inquire about the evidence related to your assessment or management of this patient? Provide your rationale. (2 marks)

3 key terms: TFCC tear, FOOSH injury, Conservative PT management

Rationale: These terms would help provide some evidence for management of a TFCC tear should the patient not progress as expected. There may be other treatment options conservatively we had not considered, or conversely that can help us make management decisions to prompt a referral to a specialist.