CERVICAL CASE SCENARIO

History and Interview

A 55-year-old male arrives to your physical therapy clinic with complaints of right-sided neck pain that began insidiously 4 weeks ago. He notes that symptoms, which he describes as sore and sometimes burning, can radiate into the right interscapular region and occasionally travel down his arm. He states pain intensity ranges from 4-7/10 on the Numeric Pain Rating Scale (NPRS). He also reports some numbness in his right thumb and index finger but states that he was diagnosed with carpal tunnel syndrome 6 months prior. He primarily sits for work at a desk job with two computer monitors. He notes symptoms are worst at the end of the workday and if he is doing any heavy household chores over the weekend. The patient notes that it has been difficult to sleep in his preferred side-lying position because of the pain.

Systems Review

The physical therapist determined that screening of the neurological system with an upper quarter screen was warranted due to patient's complaints of symptoms distal to the acromion and presence of paresthesia.

Tests and Measures

The upper quarter screen identified decreased sensation in C6-7 dermatomes with no myotomal or reflex abnormalities. Evaluation of the cervicothoracic spine revealed active range of motion (ROM) measurements of 40° flexion, 50° extension with reproduction of right interscapular pain at end range, 30° left side bending, 30° right side bending with right neck pain, and 55° bilateral rotation with pain radiating into right arm when rotating to the right. Patient reported right arm pain in the lateral brachium and lateral forearm. The cervical distraction test and upper limb tension test for median nerve bias (ULTT-A) were positive. Palpation revealed tenderness and hypertonicity in the right paraspinals, scalenes, and levator scapulae. Joint mobility was hypomobile throughout the cervical spine and the upper and mid thoracic spines. He reported increased right interscapular and arm pain with assessment of lower cervical segments.

1. Based on the subjective and objective information, which of the following treatment-based classification category is most applicable?
    a. Neck pain with headache.
    b. Neck pain with mobility deficits.
    c. Neck pain with movement coordination impairments.
    d. Neck pain with radiating pain.

The correct answer is **d. Neck pain with radiating pain.** The patient was experiencing neck pain with radiating pain as well as paresthesia in the upper extremity. He tested positive for the Wainner cluster for cervical radiculopathy with at least 3 out of 4 criteria present (positive ULTT-A, cervical distraction and cervical rotation < 60).

2. Please describe the arm position that will most likely aggravate the patient's upper extremity symptoms.
    a. Shoulder abduction and external rotation to 90°, elbow flexion to 100°, full forearm pronation, full wrist and finger extension.
    b. Shoulder abduction and external rotation to 90°, full elbow extension, full forearm pronation, full wrist and finger extension.
    c. Shoulder abduction and external rotation to 90°, full elbow extension, full forearm supination, full wrist and finger extension.
    d. Shoulder extension and internal rotation, full elbow extension, full forearm pronation, full wrist and finger flexion.

The correct answer is **c. Shoulder abduction and external rotation to 90°, full elbow extension, full forearm supination, full wrist and finger extension.** This position places the most tension on the median nerve, which is ULTT-A.

3. Which level of the cervical spine is most likely involved and causing the patient's radicular upper extremity symptoms?
    a. C4
    b. C5
    c. C6
    d. C7

The correct answer is **c. C6**. Patient's numbness is located in the thumb and index finger with positive ULTT-A.

Prognosis and Plan of Care

Clinical examination and additional historical information confirmed the diagnosis of C6 radiculopathy, and the patient is deemed appropriate for treatment with physical therapy interventions. The patient was treated with manual therapy during the evaluation and provided with a home exercise program to perform hourly. He was advised to follow up in 3 days.

Intervention

The patient's initial treatment involved joint mobilizations to the lower cervical spine followed by intermittent mechanical cervical traction. He was instructed to unload his right arm by placing his hand in his pocket or supporting his arm on an armrest every hour throughout the day.

4. What is the most appropriate manual therapy technique to complement intermittent mechanical cervical traction and to address patient's upper extremity symptoms?
    a. Lower cervical lateral glides to the right.
    b. Manual cervical distraction.
    c. Median nerve tensioners.
    d. Thoracic manipulation.

The correct answer is **a. Manual cervical distraction.**

Lateral glides should be performed contralaterally (to left) to potentially increase foraminal space. Symptoms are acute, so neurodynamic mobilization should start with sliders, not tensioners. Thoracic manipulation in isolation is not supported with high-level evidence for treatment of cervical radiculopathy.

Outcomes

The patient returned to the physical therapy clinic after 5 sessions of physical therapy over a 3-week period. He regularly performed the prescribed home exercise program and reported arm pain symptom severity had decreased, now ranging from 2-4/10 NPRS. He stated that he was still having difficulty sleeping and was waking 2 to 3x/night due to symptoms.

5. Which of the following is the best recommendation for improved sleep in this case?
    a. Prone position with 1 pillow.
    b. Side-lying position without pillow.
    c. Side-lying position with 1 pillow.
    d. Supine position with 1 pillow.

The correct answer is **d. Supine position with 1 pillow.** The supine position will promote a neutral cervical spine. The patient was reporting symptoms when sleeping in side-lying, and side-lying with or without pillow may close down the contralateral intervertebral foramen, which could aggravate symptoms. Prone positioning would require substantial cervical rotation ROM, which the patient was not able to perform, and would also likely elicit symptoms.

REFERENCES

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2. Fritz JM, Thackeray A, Brennan GP, Childs JD. Exercise only, exercise with mechanical traction, or exercise with over-door traction for patients with cervical radiculopathy, with or without consideration of status on a previously described subgrouping rule: a randomized controlled trial. *J Orthop Sports Phys Ther*. 2014;44(2):42-129. doi:10.2519/jospt.2014.0103