

CERVICAL CASE SCENARIO

History and Interview

A 62-year-old male arrives to your physical therapy clinic with complaints of central neck pain that radiates down to mid-scapular level. The patient reports that 2 weeks ago when it was raining, he was walking down the stairs to the subway and slipped and fell backwards. He is not sure if he hit his head and denies loss of consciousness. He was able to get up and make it home but noticed that his neck felt very painful. He states that it has gotten a little bit better, but it is still so uncomfortable that moving his head is difficult. He describes the pain as sharp and ranging from 5-10/10 on the Numeric Pain Rating Scale (NPRS). He reports falling about 3x/week since this incident.

1. What is the most appropriate additional question to ask the patient at this time?
 - a. Are you taking medications?
 - b. Can you tell me more about the onset of your neck pain?
 - c. Do you have any numbness, tingling, or sensation changes in your arms?
 - d. Do you use an assistive device when you walk?

The correct answer is **c. Do you have any numbness, tingling, or sensation changes in your arms (presence of paresthesias in extremities)?** Due to the traumatic mechanism of injury (MOI), the patient is at risk for a potential cervical fracture. The physical therapist should use the Canadian Cervical Spine Rules. The physical therapist should first clarify if patient presents with any high-risk factors that mandate radiography (age greater than or equal to 65 years and dangerous mechanism do not apply, but vignette did not identify presence/absence of paresthesia in extremities).

Systems Review

The physical therapist determines that screening for cervical myelopathy, upper cervical instability, and cervical fracture are warranted due to traumatic MOI and significant fall history. The patient denied presence of paresthesias in extremities. The patient endorsed chronic bowel/bladder dysfunction and a delayed onset of neck pain. No midline tenderness was noted.

2. What is the most appropriate next item to assess to rule out cervical fracture?
 - a. Babinski sign.
 - b. Cervical rotation range of motion.
 - c. Gait and balance.
 - d. Sharp-Purser test.

The correct answer is **b. Cervical rotation range of motion.** This is the final criteria on the Canadian Cervical Spine Rules to determine if radiography is necessary to rule out fracture. The other items are applicable in this situation to screen for cervical myelopathy and upper cervical instability, but were not part of the validated cluster for fracture that is being asked for in this case.

Tests and Measures

Screening, including Sharp-Purser test and transverse ligament test, was unremarkable. Upper quarter screening revealed normal dermatomes, myotomes, and reflexes. Gait analysis revealed instability. Evaluation of the cervical spine revealed active ROM measurements of 30° flexion, 30° extension with pain, 30° bilateral side bending with pain, and 45° bilateral rotation with pain.

2. Which of the following is the most appropriate next step?
 - a. Assess Babinski reflex.
 - b. Assess single limb balance.
 - c. Perform cervical distraction test.
 - d. Refer patient for imaging.

The correct answer is **a. Assess Babinski reflex**. The patient is 45 years or older and has demonstrated gait deviation—2 out of 5 criteria from the cervical myelopathy clinical prediction rule (CPR) [Cook et al, 2010]. The therapist should continue to perform items from this CPR, which includes Babinski, Hoffman's, and inverted supinator sign, making Babinski the most appropriate next step. Though single limb balance assessment and cervical distraction test may be warranted, the physical therapist should prioritize items from the CPR first. Cervical fracture is less likely and imaging is not warranted per the Canadian C-Spine Rules as the patient was able to actively rotate neck to 45°.

Tests and Measures (cont.) and Intervention

The patient presents with a negative Babinski sign, Hoffman's test, and inverted supinator sign. He is unable to maintain single limb balance for 10 seconds. The patient performs the timed up and go (TUG) test in 15 seconds. Palpation of the cervical spine reveals tenderness and hypertonicity in bilateral paraspinals, scalenes, and suboccipitals. The cervical distraction test is positive for relief of neck pain. Joint mobility reveals hypomobility throughout the cervical and thoracic spines.

3. Based on the available information, which of the following would be the most appropriate initial intervention prior to returning home?
 - a. Gait training with assistive device.
 - b. Grade II cervical joint mobilizations.
 - c. Manual cervical distraction in supine.
 - d. Soft tissue mobilization of paraspinals, scalenes, and suboccipitals.

The correct answer is **a. Gait training with assistive device**. Patient reports a significant fall history, has a TUG test result associated with increased fall risk, and single limb balance assessment indicates increased fall risk. The patient should be educated to ambulate with an assistive device to address this. Other options are appropriate but are less urgent.

REFERENCES

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