Pain? Choose to BOOMER for Boomers?

by Kathlene Camp PT, DPT

Editor's Note: This clinical case commentary was part of content for the January 2021 Journal Club. These case studies are intended to demystify the more formal statistics and format of a peer-reviewed article and translate key concepts into clinically usable information. Join us for Journal Club on the third Tuesdays of January, March, May, July, September and November at 8 pm ET to discuss current concepts with a wide range of peers. Register to join us or view archived recordings at geriatricspt.org/journal-geriatric-physical-therapy.

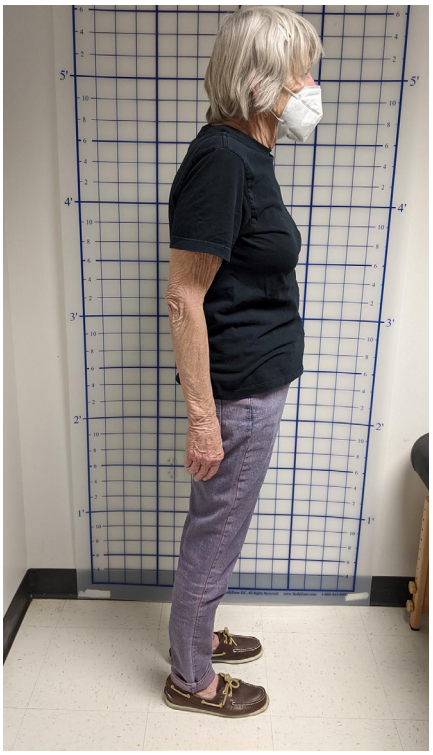
Evelyn Smith, a 75-year old female, presented to her primary care geriatric physician for an annual wellness exam with a complaint of recent insidious onset R inguinal pain radiating to her anterior thigh. Medical imaging of hip/pelvis was ordered; results were pending.

PMH

- Chronic Obstructive Pulmonary Disease; quit tobacco use in 2011
- Osteoporosis (diagnosed in 2014); T score -2.7, no location specified. Failed use of Alendronate;
- Squamous cell carinoma- upper 1/3 of esophagus treated with chemotherapy, radiation, a gastrostomy tube for nutrition. Treatment completed 2 months ago, planned PET scan in 30 days. Allowed only sips of water for comfort.
- Insomnia
- Trunk brace, physical therapy for 1 year as child (suspected adolescent scoliosis)

Subjective examination:

Patient primary complaint: Mrs. Smith reports sharp pain in R groin and anterior thigh to knee which began about 3-4 weeks prior. She reports no known trauma or change in activity level. Pain is intermittent and provoked with sit to stand, initiation of gait, and stepping up on curb with R leg. She also reports new difficulty lifting her 17-lb dog. Relief of pain reported after walking several steps and with sitting. No pain reported with preferred sleeping pattern on R or L side. Pain with initial stance for night voiding.



Medications: Vitamin B-12, Ambien, Spiriva, ondansetron, olanzapine (last 2 meds during cancer treatments). No other report of supplements or OTC medications.

Social history: Lives with husband in single family home with no steps for entry. She enjoys walking with her dachshund in the mornings. Prior to cancer treatments she was walking 3 miles per day (about 1 hour) but can now only manage 1 block (about 20 minutes including standing breaks for dog) before fatigue. Several children and grandchildren live nearby. Hobbies include puzzles.

Patient goals: Be able to walk further, relief of pain, and hoping for a cancer-free report from PET scan.

Objective Examination

Cognitive screening: results available from social worker notes indicate recent GDS: 2/30, MMSE: 28/30

Pain survey: Hip Dysfunction and Osteoarthritis Outcome Score (HOOS) Jr: 6/24 (Interval Score: 70.426) with pain primarily impactful for stairs and rising from sitting.

Pain: 0/10 rest, 6/10 with sit to stand, initial steps + stepping onto 8" step. Pain sharp, only in groin area at this time; intermittent report of anterior thigh pain

Falls: Patient denies history or concern for falls; no AD used for indoor/outdoor ambulation

Vitals: rest- BP 128/85; HR 84 bpm, regular; RR- 14 breaths/min; SpO2 on room air 94%

Height/weight: 5'4", 127 lbs. (1 year prior: 5'4", 138 lbs.)

Posture: Thoracic kyphosis, forward head and rounded shoulders, wide BOS

Flexibility: Symmetrical mild tightness

in bilateral hamstrings at 75 degrees

Trunk screen: Mrs. Smith is able to perform trunk flexion without pain, mild L thoracic rib hump noted. No pain with extension. Symmetrical side-bending and rotation, without pain or provocation of leg symptom.

Hip ROM: L hip WNL throughout. R hip WNL except limited by pain at soft to firm end-range with ER at 45 deg and ABD at 50 deg.

MMT: WNL except for pain reported with resisted R hip flexion and ABD in supine

Palpation: no tenderness in bilateral pelvic or hip regions

Special tests: FABER R (+), Fulcrum test R (+)

DTRs: symmetrical results- patellar (2/4), Achilles (1/4); no report of tingling or numbness in LEs

Outcome Measures:

- Occiput to Wall Difference (OWD): normal posture= 8 cm; best posture = 5.2 cm
- BOOMER score:
  - Step test: 8 reps, R/L- score 2 or 3 (score criteria does not differentiate with 8 reps)
  - TUG: 12.75 sec - score 3
  - Functional Reach: 11.5 in (29.2 cm)- score 3
  - Timed stance: 62 seconds - score 3
    - total score: 11 or 12/16 (note: final score dependent on step test)
- Short Performance Physical Battery (SPPB)
  - Balance test: Semi-tandem = 10 sec, Tandem 2 sec; score 2
  - Gait: 8-foot gait speed 2.5 sec, score 4
  - Repeated STS: 12.5 sec; score 3
    - Total score 9/12
- Single Leg Stance (SLS): R= 2 seconds, L = 3 seconds (no pain either limb)
- 6-minute walk test:
  - 295 meters
  - post vitals:
    - 1 minute: BP 170/90, HR 96 bpm, RR 20 breaths/min, O2 78%
    - 3-minute: BP 134/82, HR 78 bpm, RR 14 breaths/min, O2 97%
    - RPE: "fairly light" - 12-13 on Borg scale 6-20

Assessment: Mrs. Smith presents with pain influencing transfers, initiation of gait, and management of steps/curbs. She has impaired posture with normal OWD >6.5 cm, suggestive of hyper-kyphosis which can impact fracture and fall risk. Decreased aerobic capacity as compared to persons with COPD (<380 m). She has impaired balance, with SLS < 5 sec and tandem stance <10 sec, which places her at risk for falls especially when relying on narrow or single limb support. BOOMER battery was used to assess performance due to multiple components associated with fall risk but did not reveal significant risk based on individual components and did not reveal pertinent areas for intervention. The SPPB was found only to be significant for decreased stability in tandem stance as suggested above. Her medical history, lifestyle, smoking history, decreased persistence for osteoporosis management recommendations, weight loss, and current presentation of symptoms raises concerns for bone integrity, especially in R hip. Mrs. Smith has maintained her independence with ADLs and is performing limited walking aerobic activity to tolerance of fatigue without limitations due to pain. Mrs. Smith would benefit from skilled physical therapy to provide education and therapeutic intervention for factors related to osteoporosis management including proper body mechanics, strengthening, and balance. Mrs. Smith would also benefit from collaboration with care team to address nutrition and considerations for pharmacotherapy management

Plan: Mrs. Smith will attend outpatient physical therapy once every 2 weeks for 12 weeks, 6 visits total, to address goals for progressive strengthening, balance, postural correction and education on osteoporosis management and bone protection. Plan to follow-up with physician's group to attain results of recent X-ray. Will recommend collaboration to address additional factors for nutrition and medical management.

Goals

Short-term goals (2-6 weeks)

1. Patient to verbalize and demonstrate understanding for proper body mechanics to reduce torque forces on R lower extremity during ADLs.
2. Patient will be able to perform with repeated 5-time sit to stand without pain and <12 seconds to decrease fall risk and improve functional strength based on cut-off risk for falls[1]
3. Patient will demonstrate improved control with transfers and initiation of gait to perform TUG in <12 seconds based on cut-off score of 12 seconds for increased risk of falls.[2]

Long-term goals (12 weeks)

1. Patient to demonstrate proper body mechanics using hip-hinge while performing desirable tasks such as puzzles and ability to lift >17 lbs pet.
2. Patient to improve functional balance and mobility with increase in BOOMER score to ≥15 points based on MCID change of 3 points[3]
3. Patient to improve normal postural alignment with OWD to <6.5 cm to decrease risk of VCF due to hyperkyphosis based on 6.5 cm cut-off[4]
4. Patient to commit to 2 appropriate behavioral action steps to address modifiable risk factors and interventions associated with osteoporosis management.

Clinical interventions

Mrs. Smith will be provided with educational materials from reliable resources such as the National Osteoporosis Foundation and the American Bone Health organization to enhance her understanding for osteoporosis management considerations. This education will be reinforced during her therapy sessions and utilized to influence behavioral change towards actions steps to improve her osteoporosis management.

Physical therapy intervention will be directed toward progressive strengthening with bilateral to unilateral body-weight support functional training. Additional resistance with use of free weights to increase loading forces as appropriate for motor control and symptoms. Strengthening resistance for the lower extremities will be maintained in alignment with vertical forces through femur to reduce proximal torque stress at femoral neck, especially until X-ray clearance.

Additional intervention to address postural alignment will be considered with manual intervention, self-mobilization techniques, and/or trunk extension strengthening to decrease kyphotic posture. Functional movement training with use of hip hinge will be performed with carryover to tasks such as lifting, reaching, and household tasks. Exercises for balance training will be incorporated to address static and dynamic balance to reduce fall risk.

Mrs. Smith will be provided with written HEP illustrations to reinforce exercises, mechanics, and management of osteoporosis.

References

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