Manual Traction in the context of Cervical Spondylosis: A Case Report

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Background

- Spine complaints are common in family practice ambulatory care. These involve both spinal pain, referred pain, and nerve compression syndromes. Direct physical exam of the spine can be of limited diagnostic value. The examining physician can utilize diagnostic maneuvers to enhance diagnostic acumen for these complaints beyond simple palpation and range of motion.

- Cervical spondylosis is a broad term to describe age-related chronic disc degeneration in the neck. Spondylotic changes of the cervical spine are present in up to 85% of patients older than 60 with significant degenerative changes at 1 or more levels in 70% of women and 95% of men between the ages 60 and 65.

- The most common area of cervical spondylosis is C5-C6 followed by C6-C7 and C4-C5, which can result in mechanical neck pain with associated abnormal findings of decreased mobility, muscle spasms, and tenderness.

- Consensus practice guidelines on spondylitic pain recommends 6 weeks of conservative therapy to prevent unnecessary invasive procedures and associated healthcare costs. Conservative management involves a trial of analgesics, anti-inflammatory medications, physical therapy, traction, and massage.

Objectives

- Demonstrate the utility of traction techniques during the physical exam in the setting of noticeable cervical spondylitic pain.

- Discuss traction modalities for relief of cervicogenic pain.

Methods

- Six weeks after the initial visit, a follow-up appointment was made to survey and understand the patient's clinical symptoms and the impact of the application of traction during the visit. We utilized pain metric questions from the PROMIS Scale v1.0 - Pain Intensity 3a. A Short Assessment of Patient Satisfaction (SAPS) scale was also used. Additional questions were added to assess the progression of symptoms. We asked how much the pain interfered with their daily activities on the following scale: "not at all, a little bit, somewhat, quite a bit, and very much." We assessed those questions for the time frame of "prior to the visit," "during the visit," "immediately after the visit," and "in the past 7 days," for the six-week follow-up.

Case Presentation

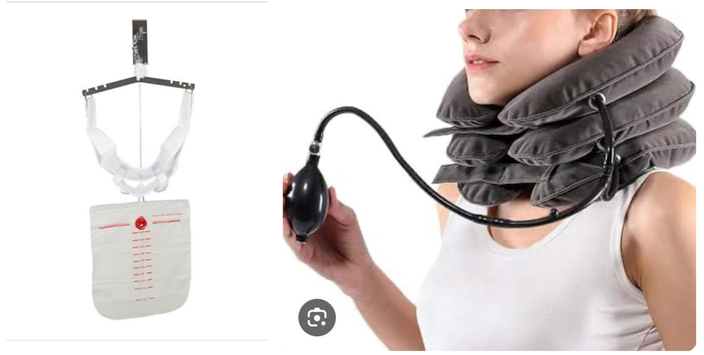
- An 84-year-old woman with a past medical history of C5-C6 fusion, osteoporosis, past lumbar vertebral compression fracture, past right hip fracture, hypothyroidism, atrial fibrillation, general anxiety disorder, and hypertension, presents for evaluation of significant neck pain after a motor vehicle collision where she was transported to the Emergency Room, and had a cervical CT scan showing trace degenerative anterolisthesis of C4 on C5 with osseous fusion of the C5-C7 vertebral bodies. Patient also came to discuss her osteoporosis.

- **PHYSICAL EXAM:**
  - Vital signs: BP 122/76 Pulse 55 | BMI 20.72 kg/m^2 otherwise WNL
  - Back: Examination reveals kyphoscoliosis, with the left shoulder higher than the right.
  - Neck: Cervical spine range of motion was limited in rotation, extension, and side bending. Retraction maneuver elicits pain radiating down the spine. Lhermite's test was positive. Spurling's maneuver is negative.
  - Manual traction provided symptom relief.

- **ASSESSMENT AND PLAN:**
  - This was an 84-year-old female who presented for evaluation of neck pain post-MVA and for treatment of her osteoporosis.
    - Cervicalgia and Cervical Spondylosis with Stenosis: The patient's acute neck pain was from a whiplash injury sustained in a recent MVA, superimposed on chronic cervical spine disease including a prior fusion and significant degenerative changes.
      - Patient was instructed on a self-cervical traction maneuver to perform at home for symptom relief.
    - Osteoporosis: The diagnosis was confirmed by a recent DEXA scan showing a T-score of -2.9, a progression from osteopenia five years ago, patient was started on ibandronate.



Figure 2 from Satpute, K., Bedekar, N. & Hall, T. Effectiveness of Mulligan manual therapy over exercise on headache frequency, intensity and disability for patients with migraine, tension-type headache and cervicogenic headache – a protocol of a pragmatic randomized controlled trial. *BMC Musculoskelet Disord* **22**, 243 (2021). https://doi.org/10.1186/s12891-021-04105-y



Home traction devices can be used if manual traction is helpful in the office or physical therapy office. Accordion pump devices and overdoor traction devices are available for under $30.

Results

- The patient reported that pain symptoms were "severe" prior to the visit, and impaired daily activities "quite a bit." Then upon receiving traction her pain improved "very much," and improved their satisfaction "very much." Immediately after the visit they reported their pain was "mild" and interfered with their daily activities "a little bit."

- The patient reports adherence to applying traction at home for about 1 month. Then inspired by the manual traction in practice found other ways of stretching their neck to alleviate pain involving maneuvers that decompressed the spine.

- She noted over the 7 days prior to the final interview that her pain has increased to a "moderate" level, and that the pain interfered "quite a bit" with daily activities. She reported the increase in her pain may have been due to a lack of adherence towards the traction technique.

- We asked questions based on the SAPS survey to discuss general impressions of the physician during the visit. They reported that they were "very satisfied" with the physician's care, treatment explanations, examination, and respectfulness.

Discussion

- Traction in an ambulatory care setting can help with
  1. Diagnosis of clinical symptoms
  2. Immediate relief of symptoms for the patient
  3. Show the patient hope that their symptoms are amenable to physical treatments
  4. Empower the patient with techniques they can use for self-treatment
  5. Providing a modality for hands-on medicine helps build the patient-physician relationship.

- Manual traction techniques can be applied to the cervical spine, lumbar spine, sacroiliac (SI) joint, and the hip joint. Cervical and lumbar traction have not been shown to be consistently efficacious in the resolution of respective pain syndromes, and can be applied on a case-by-case basis assessing the individual results. SI traction and hip traction show a modest beneficial effect in treatment of SI joint and hip joint pain.

- Due to the conditions of advanced age and osteoporosis, traction techniques were applied with caution in the above patient, but were effective with no adverse effects. The patient was queried throughout the maneuver regarding discomfort, but voiced no concerns.

What are the risks of manual traction?
Exacerbation of axial pain, Vertebral artery injury, most notably dissection, Exacerbation of radicular pain and radiculopathy, Exacerbation of myelopathy, Elevation of blood pressure, Fracture of the vertebrae, Exacerbation of vertigo and headache

What mistakes might be avoided in attempting manual traction?
Application of excessive force - traction devices should be less than 20lbs pressure. Application of force in excessive extension, flexion, side bending or rotation. Most pressure should be along the axial alignment. Any manipulation - that is, rapid application of force to "pop" a joint. Prolonged traction - ideal less than 60 seconds

Conclusion

- In this case report, we presented a patient with neck pain after a motor vehicle accident. We discuss the diagnostic and therapeutic traction maneuvers that were used for this patient and present to the primary care clinician the scope of helpful traction techniques that can be used in the exam room and at home for patients with spine related complaints.

References

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