

Introduction

- Motor vehicle accidents (MVAs) are a common cause of chronic musculoskeletal pain and may result in long-term functional impairment¹
- Persistent symptoms despite standard therapies suggest multifactorial contributors, including somatic dysfunction and altered biomechanics³
- Osteopathic manipulative treatment (OMT) provides a non-pharmacologic, patient-centered approach aimed at identifying and treating somatic dysfunction to improve structural alignment, support autonomic balance, and promote recovery^{3,4,5}

Mechanism of Injury

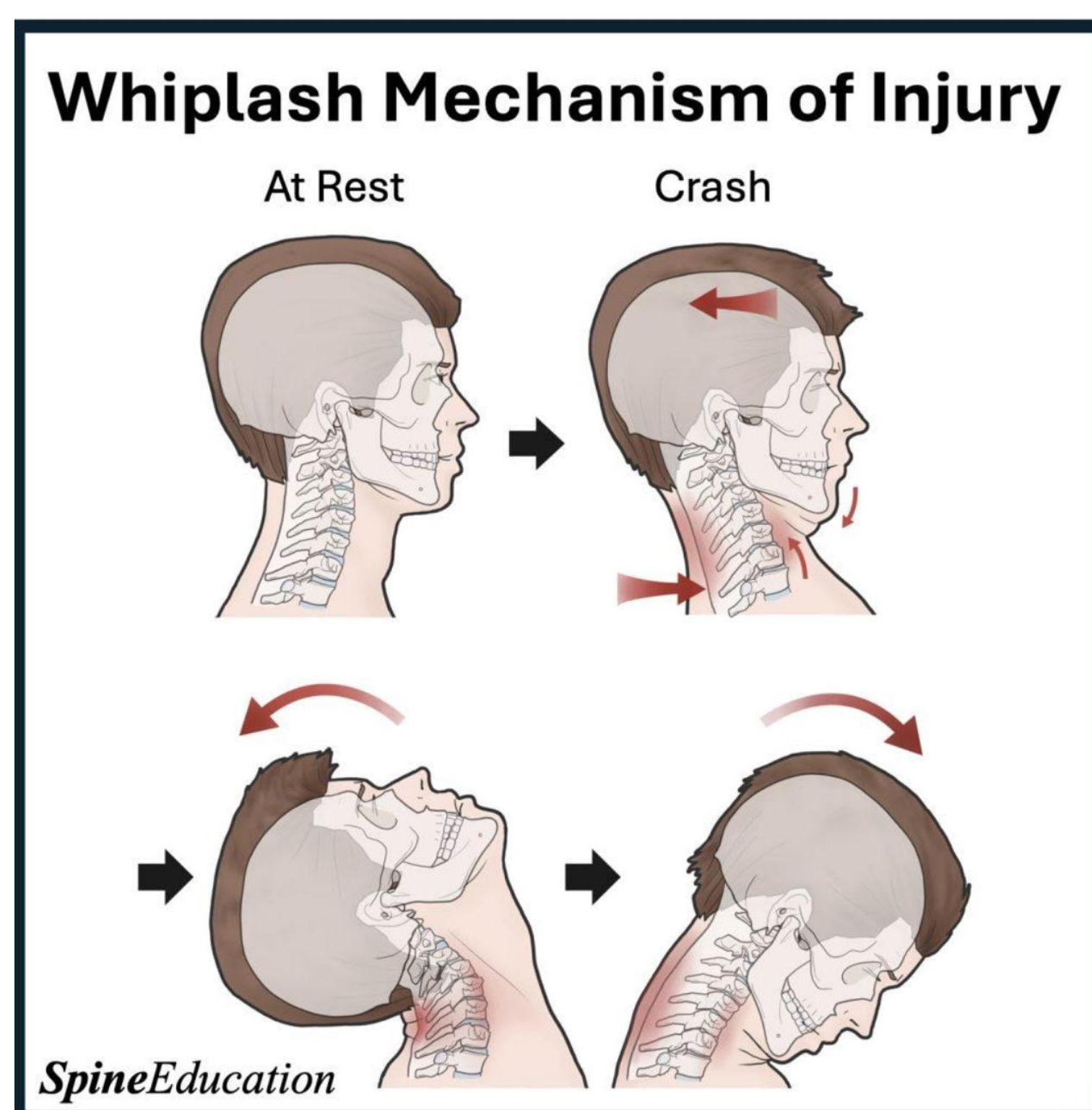


Image source: Orthoeducation.com⁷

Fig. 1. High-energy motor vehicle accident mechanism demonstrating multi-directional forces contributing to cervical spine injury⁷

Case Presentation

- Patient history:** 38-year-old female with prior rollover motor vehicle accident (>1 year ago) resulting in C2 fracture, halo bracing, and ~6-week coma
- Presenting symptoms:** Chronic neck pain and stiffness, left chest wall pain, headaches, and neurologic symptoms (numbness, tingling, lower extremity discomfort)
- Prior management:** Treated with medications and supportive care with only partial relief
- Structural exam findings:** Cervical restrictions including OA (E SL RR) and AA rotation to the left, rib dysfunction (bilateral first rib inhalation, left ribs 3–5 exhaled), T4 FSL, L5 FSR, and left innominate posterior rotation; neurologic exam grossly intact

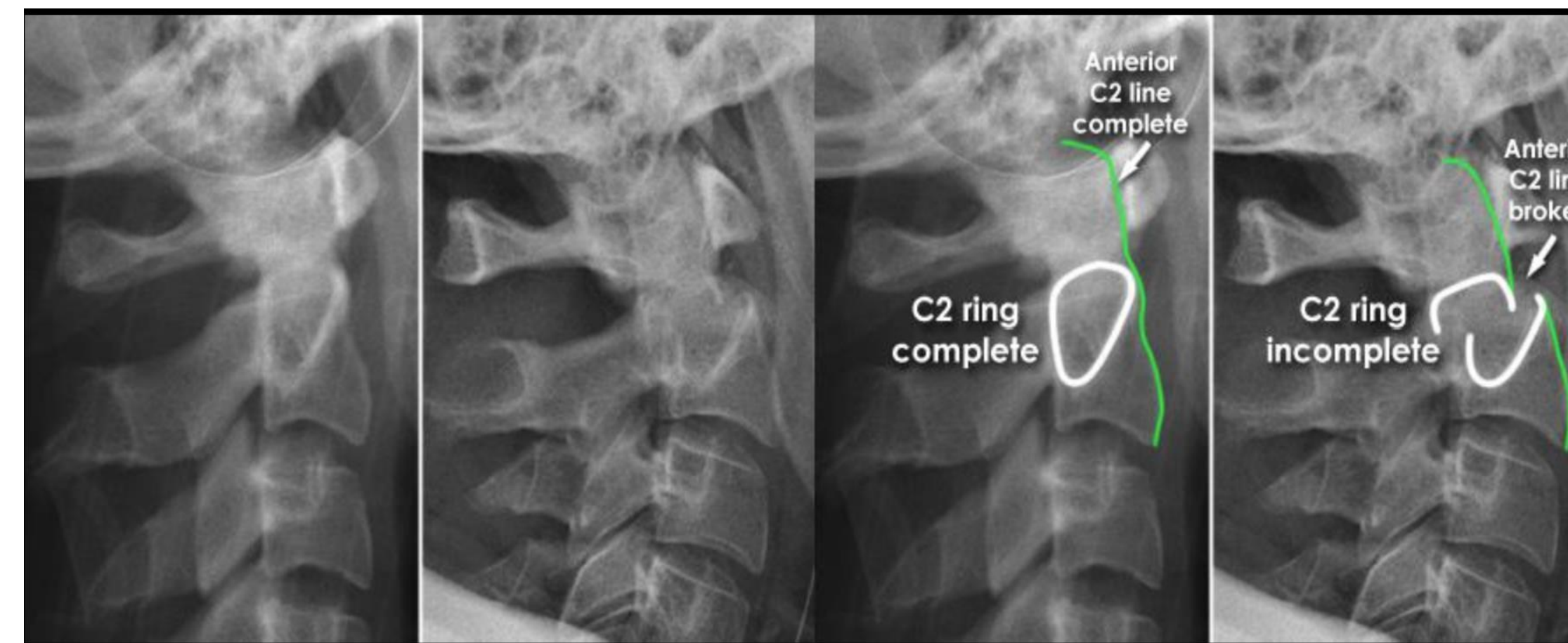


Image source: Radiology Masterclass⁶ (www.radiologymasterclass.co.uk)⁶

Fig. 2. Representative radiograph of a cervical spine fracture involving the axis (C2) with associated displacement and alignment abnormality. Original patient imaging was unavailable⁶

OMT Interventions and Outcomes

- OMT performed over 6 sessions using **muscle energy, myofascial release, and balanced ligamentous tension**
- Progressive improvement in cervical range of motion, pain, and overall function
- Transient exacerbation of occipital pain occurred without loss of functional gains
- Final outcome demonstrated minimal pain with sustained functional improvement with ability to perform daily activities, including driving and turning the head without limitation

Clinical Progression Over Time

Time	Pain	Cervical ROM	Function
Initial	6/10	Significantly restricted	Limited
Week 1-2	Improved	Improved	Improved
Week 3	Increased (<i>flare</i>)	Maintained	Stable
Week 6	Minimal	Full	Improved
Final	Minimal to none	Full	Functional recovery

Pain levels based on patient-reported trends across visits.

Discussion

- This case demonstrates improvement in pain, range of motion, and function following targeted osteopathic manipulative treatment in a patient with chronic post-traumatic symptoms
- The patient's clinical course showed progressive **improvement** with a transient symptom exacerbation that did not result in loss of functional or structural gains
- Improvement in mobility preceded complete symptom resolution**, suggesting that restoration of underlying somatic dysfunction may occur independently of pain perception¹
- This pattern is consistent with chronic pain models in which symptoms may persist despite objective functional improvement¹
- These findings support the role of OMT as a non-pharmacologic adjunct in the management of chronic post-traumatic pain, particularly in patients with incomplete response to standard therapies^{2,3,4}*

Conclusion

- OMT may improve functional outcomes in patients with chronic post-MVA pain
- Functional recovery may occur despite persistent or fluctuating symptoms
- Addressing somatic dysfunction may support recovery and reduce reliance on pharmacologic therapy

References

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