

## Case Study: Management of Chronic Cervicogenic Headache with Associated Thoracic Dysfunction

This case study adopts a blended, evidence-informed approach that integrates the patient's narrative, clinical expertise, and findings from the physical examination alongside current research evidence. By triangulating these components, we aim to develop a comprehensive understanding of the patient's presentation within the context of our clinical service.

This approach enables the application of broad evidence-based principles while maintaining a person-centred focus, ensuring that interventions are both clinically appropriate and individually relevant. Furthermore, it supports the integration of best available evidence across musculoskeletal practice.

It is anticipated that the reader will gain insight into these three perspectives through the patient narrative, the clinical case analysis, and the accompanying brief evidence-based review.

### Patient Overview

A 69-year-old female presented with a chronic history of headache and cervical dysfunction. The patient reported significant functional limitations, including reduced ability to exercise and disrupted sleep, alongside a high level of fear associated with movement.

*"My symptoms in managing my headache have been extreme. The headaches have been really debilitating. It started in my shoulder, travelled up in my head and into my eye, to the point where I'd have to go to bed three times a day. I just literally couldn't function at times."*

*"I had physio, I have massages, I had everything. I have an MRI, I had so many scans, which all told me there was literally nothing wrong with me. But now I can move my head, I couldn't move it beyond a certain point at its worst moments."*

*"I got scared of actually exercising because was that doing more damage."*

*"When I have a setback, and I've literally no idea when, why that happens or what it is that happens, that knocks my confidence a little bit."*

*"You become very scared of doing something that might exacerbate it, that might make things even worse."*

### Presenting Complaint

The patient described a five-year history of headache distributed in a trigeminal pattern, predominantly affecting the left side of the head and extending into the eye region. Symptoms were

reported as a burning sensation, with pain intensity ranging from 4/10 to 8/10, occurring daily and persistently.

Additionally, the patient reported:

- Severe restriction in left cervical rotation
- Burning discomfort in the mid-thoracic region (T3–T6), left-sided

### **History of Presenting Condition**

The patient had previously undergone extensive medical and conservative management, including:

- Pharmacological interventions
- Upper cervical spinal injections
- Magnetic resonance imaging (MRI), which was reported as negative
- Physiotherapy and chiropractic treatment

Despite these interventions, the patient reported no significant improvement in symptoms. The chronicity of symptoms had contributed to kinesiophobia (fear of movement) and reduced participation in physical activity.

No significant past medical history (PMH) or drug history (DH) was reported. Screening for serious pathology (5Ds and 3Ns) was negative.

### **Assessment Findings**

#### **Postural and Functional Assessment**

- Left lateral head tilt observed in standing
- Reduced single-leg balance on the left, requiring external support within 3 seconds
- Subjective feeling of unsteadiness toward the left

#### **Cervical and Thoracic Mobility**

- Left cervical rotation limited to approximately one-third of available range compared to the right
- Thoracic rotation limited to 50% range on the left
- Positive flexion-rotation test on the left
- Marked stiffness and restriction at the upper cervical region (C1–C2)

#### **Neurological and Vestibular Screening**

- Smooth pursuit and saccadic eye movements were negative
- No neurological deficits identified

#### **Strength Assessment (Dynamometry)**

- Elbow flexion: 21% reduction
- Shoulder abduction: 22.5% reduction
- Knee extension: 16% reduction
- Hip extension: 4% reduction

## **Palpation Findings**

- High sensitivity in the T3–T6 thoracic region, with protective muscular responses
- Sustained soft tissue palpation of upper cervical spine reproduced familiar head pain symptoms
- Notable soft tissue tension and guarding in upper cervical and thoracic regions

## **Clinical Reasoning**

The patient's presentation was consistent with a chronic cervicogenic headache, with significant contribution from:

- Upper cervical joint dysfunction (C1–C2)
- Thoracic spine sensitisation
- Central sensitisation mechanisms
- Maladaptive movement behaviours and fear avoidance

The reproduction of familiar headache symptoms during palpation, alongside restricted cervical rotation and a positive flexion-rotation test, supported a cervical source of headache.

Thoracic hypersensitivity and widespread strength deficits suggested a multifactorial presentation, incorporating both peripheral and central contributors to pain persistence.

## **Management Plan**

A multimodal approach was implemented, targeting both symptom modulation and functional restoration:

### **Manual Therapy**

- Sustained, graded pressure to sensitised soft tissues to reproduce symptoms in a controlled, non-threatening context
- Aimed to activate descending inhibitory pathways and reduce muscular guarding
- Rhythmic thoracic mobilisations to improve segmental mobility and reduce sensitivity

### **Exercise Rehabilitation**

- Progressive strengthening programme targeting identified deficits
- Whole-body rotational movements encouraging left-sided loading and mobility
- Balance retraining, particularly focusing on left-sided stability

### **Education and Self-Management**

- Reassurance regarding the benign nature of symptoms
- Addressing fear of movement
- Encouragement of gradual return to activity

## **Outcome**

### **Short-Term (4 sessions)**

- Restoration of full cervical and thoracic rotation
- Significant reduction in pain intensity
- Improved movement confidence

### **Medium-Term (6 weeks)**

- Pain reduced to 0/10, with only occasional mild stiffness
- Strength improvements across previously identified deficits
- Return to regular exercise, including gym participation
- Improved lifestyle engagement, supported by body composition monitoring

### **Discussion**

This case highlights the importance of a multidimensional approach in managing chronic musculoskeletal pain. Despite extensive prior interventions, meaningful improvement was achieved through:

- Targeted manual therapy addressing sensitised tissues
- Graded exposure to movement
- Integration of strength and functional rehabilitation
- Education
- Support with lifestyle changes

The use of symptom reproduction in a controlled context may have contributed to desensitisation and improved central pain modulation. Furthermore, addressing psychosocial factors, including fear of movement, was essential in restoring function.

### **Conclusion**

This case demonstrates that chronic cervicogenic headache, even when longstanding and resistant to prior treatment, can respond positively to a holistic, person-centred approach. Combining manual therapy, exercise, and education facilitated both symptom resolution and long-term self-management.