

Complete Resolution of Traumatic Spinal Cord Compression using Chiropractic Care: A case report detailing the radiologic justification, with pre- and post-scans, for conservative care

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Narrative: A 52-year-old female presented to a Chiropractor with both pain and weakness in the right side of the neck, as well as the upper limb, following a rollercoaster ride one week prior. The patient was examined clinically and found to show a mixture of both upper and lower motor neuron signs, and the subsequent MRI scan revealed a paracentral disc herniation compressing the spinal cord at C7-T1.

This case report describes how the radiologic characteristics of the offending anatomy were used to rationalise this clinical presentation and ultimately warrant a trial of conservative care in light of standard clinical guidelines.

Importantly, this case report demonstrates how a thorough examination of radiologic findings, beyond routine diagnosis, can open effective and alternative healthcare pathways which successfully and safely bypass significant surgical or pharmacological intervention.

Indexing Terms: Chiropractic; Sacro-Occipital Technique (SOT); Traumatic Spinal Cord Compression; imaging.

Introduction

A 52-year-old female presented to a Chiropractor with severe right-sided neck, shoulder, and arm pain following a rollercoaster ride whilst on holiday. The patient had previously been asymptomatic before riding the rollercoaster but within 24 hours of the ride described an onset of severe neuropathic pain.

Through the following week, the patient noted zero remittance of the discomfort as well as the gradual onset of weakness in the right wrist and fourth and fifth digits of the right hand. At 11 days following the incident, the patient presented to the Chiropractor seeking relief.

During the clinical exam the Chiropractor identified upper motor neuron signs, as well as lower motor neuron signs, and subsequently referred the patient for an MRI. The MRI revealed spinal cord compression from a

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paracentral disc herniation at the C7-T1 level. Following a discussion with the chiropractor, the patient also discussed their symptoms and findings with their GP, whom, as a result, advised the patient to take a course of Pregabalin and corticosteroids with a view to urgent referral for decompression surgery. The patient returned to the Chiropractor to discuss their options.

Clinical findings

The patient underwent a clinical exam that consisted of routine chiropractic testing typical of the Sacro-Occipital Technique, as well as a medicalised clinical neuro-orthopaedic exam. A summary of the clinical neuro-orthopaedic findings is given below.

Figure 1: Exam findings

Neuro-Orthopaedic Examination	
Myotomes	R Biceps 4 R Triceps 3 R Wrist Extensors 1 R 4th Digit Extension 0 R 5th Digit Extension 0 R 5th Digit Abduction 0 L Upper Limb - unremarkable
Sensation	Reduced over the dorsum of the right forearm as well as the ulnar aspect of the right dorsal hand. Absent over the dorsal aspect of the 4th and 5th digits.
Reflexes	Biceps 3+ bilaterally R Triceps 0 Wrist Extensors 3+ bilaterally R Pectoralis 3+
Hoffman's	Right Hand positive
Upper Limb Clonus	Right 5+ beats Left 2 beats
Lower Limb Clonus	7+ beats bilaterally
Neuro-Ocular Testing	No abnormality.
L'Hermitte's	Not possible due to pain.
Straight Leg Raise	Left 50 degrees Right 40 degrees
Maximal Cervical Compression	Positive for cervical pain bilaterally.
Peripheral Pulses	Normal bilaterally.

Radiologic examination

Relevant sagittal and axial slices of the MRI can be found below, along with a summary of important radiologic findings and characterisation of the anatomy.

Figure 2a: Sagittal STIR Sequence



Figure 2b: Axial T2 Sequence

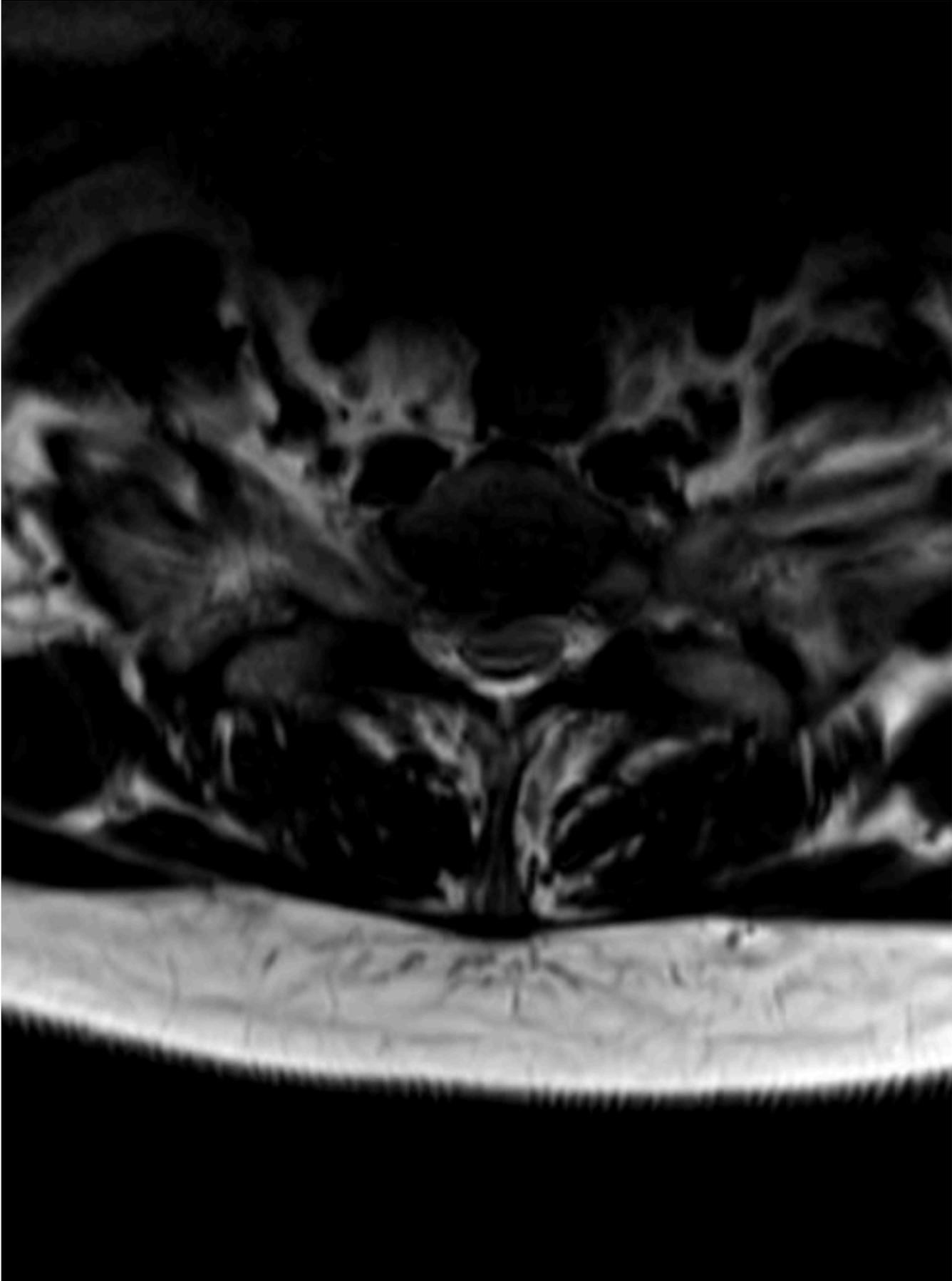


Figure 3: Findings ~ C7/T1 Disc Bulge

Radiologic Findings - C7/T1 Disc Bulge	
Summary of Characteristics	A broad-based disc lesion that protrudes into the right subarticular region straddling both the central and lateral recess zones.
Signs of Acute Annular Tear	Signs of high resonance in the annular region on the sagittal STIR image.
Modic Changes	There are no modic changes visible on T1 nor STIR sequences in the sagittal views.
Pfirmann Changes	Grade 2
Suzuki Algorithm	Grade 1
Cord Contact and Distortion	There is cord contact with mild distortion of the cord.
Cord Oedema	There is no oedema within the spinal cord at the point of contact.
Nerve Root Displacement	There is no displacement to the right C8 nor right C7 nerve root.
Foraminal Stenosis	The position of the disc herniation creates only mild foraminal stenosis.

Conclusive examination findings, diagnosis, and clinical justification

The patient exhibited clinical signs of both spinal cord compression and peripheral nerve entrapment following mild trauma. The clinical findings were substantiated by MRI findings which showed a paracentral disc herniation at the C7/T1 level impinging upon the spinal cord.

The characteristics of the disc lesion were examined in detail and identified as uncomplicated (Figure 3); and if extraforaminal, the kind that would otherwise foster a favourable prognosis. (Borella-Andres et al, 2021; Ghanim et al, 2024; Kuligowski et al, 2021)

The radiologic findings were explained to the patient along with provisional plans for safety netting and, of course, any risk.

The patient was diagnosed with subacute spinal cord compression following a mild traumatic event. Following discussions with the Chiropractor and their GP, the patient decided to engage in a trial of Chiropractic care.

Treatment

Following the decision to engage in a trial of Chiropractic care, the patient voluntarily postponed any proposed surgical intervention, and she voluntarily abstained from any pharmaceutical management of her symptoms. The initial trial of care was prescribed as six appointments over three weeks.

The Chiropractic care followed basic Sacro-Occipital Technique protocols and consisted of gentle mobilisations to the cervical spine as well as both soft tissue and vertebral manipulations which were applied to other areas of the body.

For the trial of care, the patient did not take any pharmaceuticals; no Pregabalin, no corticosteroids, and no anti-inflammatories, and the patient did not engage in any therapeutic exercise or rehabilitation.

The patient and the Chiropractor agreed that if there was reasonable subjective improvement, and if neurological deficits were shown to improve clinically, they would continue with the Chiropractic route.

Follow-up and outcomes

Following the initial trial of care of six appointments in three weeks, the patient reported a 90% improvement in pain and discomfort. And at the re-examination on the sixth appointment, the patient showed marked improvement in pain-provocative testing as well as no longer demonstrating any upper motor neuron signs: no upper or lower limb clonus, no hyper-reflexia, and no Hoffman's Reflex.

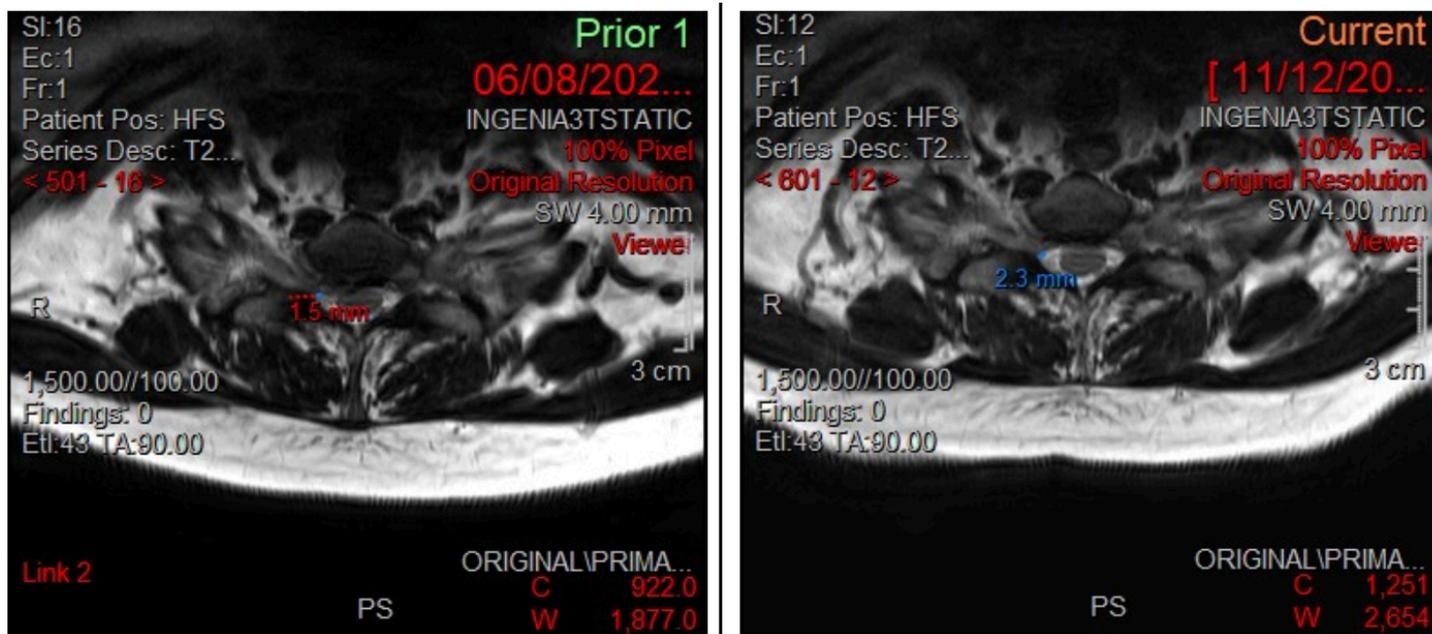
What was noted at the re-exam was still the presence of myotomal weakness: right wrist extension (3+) and right 5th digit abduction (2+). The decision was made to engage in another three weeks of Chiropractic care with adjunct muscle strengthening exercises at the hand and wrist, and by the 10th appointment, the myotomal deficit had clinically recovered.

By eight weeks of care, the patient reported a complete resolution in both pain scores as well as neurological function.

A follow-up MRI scan was made at six months, and this shows complete recession of the C7-T1 disc herniation, no areas of high signal within the annular fibres, and an increase in space at the lateral recess of the right foramina. Incidentally, the patient's cervical lordosis also increased by 14°.

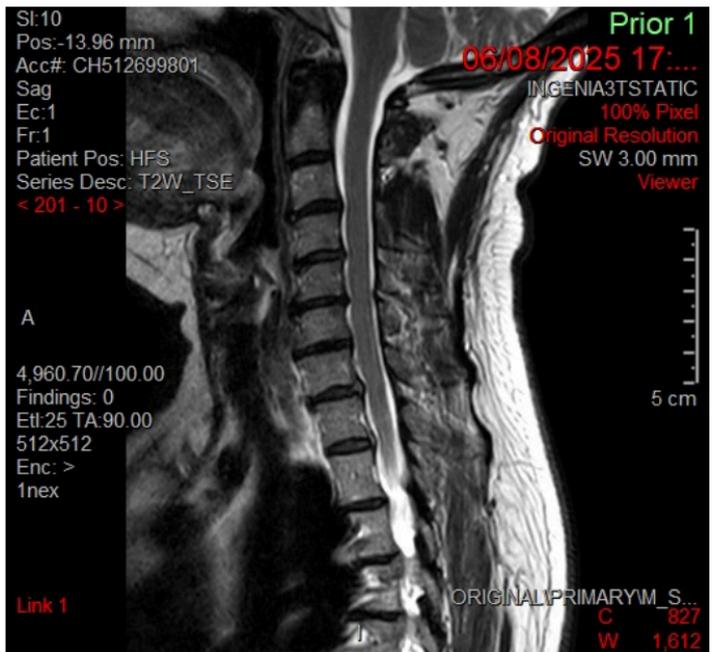
Comparative post-treatment scans are shown below.

Figure 3: Findings ~ C7/T1 Disc Bulge

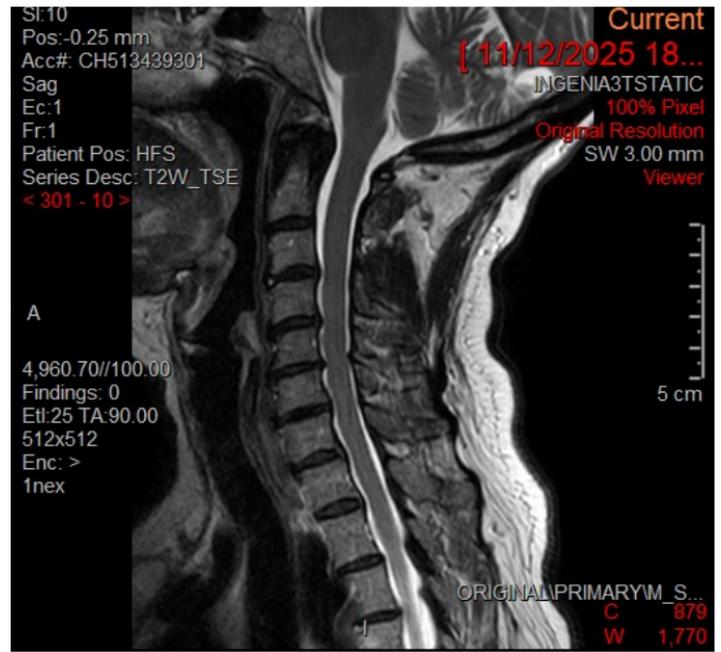


Axial T2 sequence: Pre ~

Axial T2 sequence: Post ~



Sagittal STIR sequence: Pre ~



Sagittal STIR sequence: Post ~

Discussion

Generally, best-practice guidelines state that if cord compression is of the type that is non-sinister, slowly-developed and mild, it may initially be managed by using non-specific anti-inflammatory drugs, oral corticosteroids, or anti-convulsants such as Pregabalin and Gabapentin. (Davies, 2018; Fehlings et al, 2017)

In the case of moderate-severe cord compression, which is typically characterised by the presence of upper motor neuron signs, the consensus is that the patient be referred immediately for orthopaedic consult. (McCartney et al, 2018) Of which, the outcome of that consult, is often significant surgical intervention; vertebral fusion, posterior laminectomy, or anterior disc decompression. (Fehlings et al, 2025)

This case demonstrates that the value of radiologic classification systems when making informed clinical decisions in practice, and importantly, the value of chiropractic care even in the face of significant symptomatology. Peculiarly, the medico-legal landscape of private healthcare in the UK finds that best practice guidelines for the medical profession actually span inter-professionally. The result of this broad expansion is that whilst the practice of Chiropractors is subject to the scope of these medically oriented guidelines, the inclusion of Chiropractic care within them is often left out.

For patients, this means that they may lose a conservative solution to their health-needs which are otherwise managed using drugs or surgery. Whilst not all cases of cord compression present the same, this case report shows that proper classification of its aetiology from a radiology perspective has the potential to save the patient from significant surgical and pharmaceutical intervention.

Conclusion

It is important to remember at this stage, and that should underpin any impetus for the re-evaluation of guidelines, that wider access to conservative healthcare not only offers a hugely reduced iatrogenic risk for the patient, but also reduced financial and administrative costs for the healthcare system. (Sugawara, 2017)

The author suggests that the incorporation of radiologic classification systems into guidelines and clinical pathways would make a reasonable start. And that, perhaps, future inclusion of professions not affiliated with drugs or surgery could then follow.

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Evidence context

This descriptive study is an observational design and is limited as an n of 1 report, lacking controls. The effect of potential confounding factors, including comorbidities, cannot be excluded. We recognise that subluxation identification and correction is the art of the individual Chiropractor.

The findings could support the clinically relevant hypothesis that the identification and correction of spinal and cranial dysfunction within SOT protocols is a modifiable contributor to the effective management of the clinical presentation of Traumatic Spinal Cord Compression.

This report is eligible for inclusion as 'expertise' bringing clinical insights into the JBI FAME evidential ring (JBI, 2024) to inform evidence-based healthcare in general and the science of Chiropractic in particular.

Disclaimer

This case report has been prepared in full compliance with the General Chiropractic Council (GCC) UK's Code of Practice and Standard of Proficiency. Written informed

consent was obtained from the patient's legal guardian for the documentation and publication of this case, ensuring adherence to all ethical and legal requirements. All personally identifiable information has been anonymised to maintain patient confidentiality following the Data Protection Act 2018 and the UK General Data Protection Regulation (UK GDPR). The purpose of this case report is to contribute to clinical knowledge and professional discourse within the chiropractic profession.

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