

Improvements in pain, radiculopathy and quality of life 24-year-old male with a history of a motor vehicle accident: A case report

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Background: A 24-year-old male presented for chiropractic care with a chief complaint of pain and radiculopathy following a serious motor vehicle accident. With the collision now two years behind him, he still experienced pain affecting sleep, mobility, and other aspects of his daily life.

Intervention: The patient began a course of care during which he was checked and adjusted according to the Advanced Biostructural Correction technique.

Outcomes: Over the course of care the patient saw marked improvements in subluxation findings, pelvic tilts and other objective tests. These occurred concomitant with significant improvements in subjective findings, like self-reported Quality of Life and ability to undertake activities of daily life, in a short time frame.

Conclusion: Even long after a person has 'recovered' from a motor vehicle accident, trauma to the body may result in significant changes. Chiropractic care should be investigated as a clinical approach by which patients can not only recover from physical trauma, but obtain their optimal nervous system function as well.

Indexing Terms: Chiropractic; Subluxation; Advanced Biostructural Correction Technique; ABC; radiculopathy; Quality of Life; activities of daily living.

Introduction

Motor vehicle accidents (MVAs) are a common source of physical trauma and can lead to a wide range of musculoskeletal and neurological injuries. Even when no fractures are present, the sudden forces involved, particularly those associated with rapid deceleration or whiplash-type movements, can result in soft tissue damage, joint dysfunction, and nerve irritation.

One possible outcome of this type of trauma is radiculopathy, a condition characterised by pain, numbness, or weakness that radiates along the path of a spinal nerve. This occurs when nerve roots become compressed or inflamed, often due to intervertebral disc injury, facet joint dysfunction, or associated swelling in the surrounding tissues. (Kreiner, 2014)

... with consistent, targeted Chiropractic care, even individuals with a history of significant physical trauma can experience substantial recovery ...'



In some cases, the symptoms of radiculopathy resolve as tissues heal. However, for many individuals, the injury sets in motion a longer-term process of maladaptation within both the musculoskeletal and nervous systems. Unresolved joint dysfunction or subluxations may perpetuate abnormal loading patterns, leading to persistent irritation of nerve roots. Chronic inflammation and altered neurological signalling can further amplify pain pathways, making the experience of pain more intense and harder to resolve over time as pain habituation sets in, altering brain responses to pathology sometimes even long after pathology at the site resolves. (Woolf, 2011) Additionally, compensatory movement patterns that develop after the initial injury may place ongoing stress on the spine and its supporting structures, increasing the likelihood of recurrent or chronic symptoms.

No individual requires this level of physical trauma to occur in order for subluxations to develop. However, the amount of force sustained in a motor vehicle accident has the potential to create significant changes in the body. It stands to reason a person may need long-term care to recover.

By identifying and correcting subluxations, Chiropractic adjustments aim to restore normal joint function, reduce irritation of neural structures, and improve the body's ability to heal. This approach may help interrupt the cycle of persistent pain and dysfunction that can follow traumatic injuries such as caused by an MVA.

This case report presents the Chiropractic management of a patient who developed radiculopathy following a motor vehicle accident. It explores how targeted care aimed at correcting subluxations may support both pain reduction and functional improvement in individuals with long-term symptoms stemming from trauma.

Case details

A 24-year-old male caravan service technician presented for chiropractic care two years after a serious motor vehicle accident. At the time of his presentation, he reported a very limited level of physical activity level, and was novice to Chiropractic. At his initial presentation, he reported that his car had collided (at high speed) with a semi-trailer. This left him with a fractured right femur, a fractured C4, bleeding on his brain, a fractured right patella, and a fractured right hand. He underwent surgery post-accident to repair the fracture in the right femur, a procedure which involved insertion of a rod, as well as a C4/5 anterior fusion, and to have his patella pinned.

Since the MVA the patient had seen a range of other health professionals including physiotherapists, osteopaths and other specialists but had plateaued in his improvement to the point he was told he would have to live with the ongoing pain.

His primary complaints were right-sided low back pain and radiculopathy with shooting pain referral into his right leg, as well as numbness in his right foot. Both of these complaints went back to the MVA some two and a half years prior. Secondary complaints included an inability to stand up straight, poor sleep, a very limited ability to engage in employment, and an inability to take his dog for walks. This all represented significant reductions to his quality of life and his life trajectory given his young age.

Clinical findings

His Chiropractic examination was undertaken according to the Advanced Biostructural Correction Protocol, and included EOS scans. ABC is a Subluxation based technique that assesses each Vertebra from C7 - L5 as well as other weight bearing joints through the pelvis and lower limbs. The protocol is followed on each visit.

During this examination range of motion tests revealed a cervical rotation of 50° to the right and 40° to the left. Lateral flexion range of motion was 30° to the left and 35° to the right. There was a range of motion of 56° in flexion and 45° in extension, revealing marked inequality.

Lumbar range of motion rotation tests also revealed significant dissimilarities, with right rotation of 20° and left rotation of 30°, as well as 33° in flexion and only 5° in extension.

Cervical Kemps test was positive on the right, with pain at the base of the neck extending into the upper trapezius. Lumbar Kemps test was also positive on the right, with increased shooting pain in the leg and sharp pain in the lower back. The patient also had a significant positive finding on the anterior sagittal balance test. The lumbar valsalva cough test was positive for pain and exacerbation of radiculopathy into the Right lower limb.

It should be noted that the patient's balance had been adversely affected by the brain injury.

An EOS scan was taken on 24 September 2021 prior to commencing the patient's Chiropractic care. It revealed that, while there was the known Anterior Cervical Discectomy and Fusion, there was no lumbar compression fracture or spondylolisthesis. A mild scoliosis was noted, with a Cobb angle L2/L5 convex to the left at 12°, and Cobb angle L1/L5 convex to the right of 12°. The thoracic kyphosis measured 36° from T1 to T12 and the lumbar lordosis measured 17° from L1 to L5. The pelvic incidence measured 42°, with sacral slope of 25° and sagittal pelvic tilt of 17°. The sagittal vertical axis measured 58mm and the CAM (centre of acoustic meatus) plumb line measured 28mm. The right acetabular roof lay 6mm lower than the left, and there was 3° of axial pelvic rotation to the right.

Both hip joints and sacroiliac joints appeared normal. An Intramedullary nail was seen in the right femur, and had been placed for the treatment of the mid shaft fracture which had healed.

Management

The patient commenced a course of care during which he was seen twice a week for twelve weeks, and once a week for nine months. During this time, he was managed using the Advanced Biostructural Correction (ABC) Protocol, and underwent clinical reviews every eight visits in the beginning, and then at twelve week increments later on in the care plan.

Additional care recommendations were limited to home exercises, and ergonomic advice for sitting, sleeping and footwear.

The focus of his care plan was overall posture and body function, with specific aims such as improving global range of motion, and addressing poor posture with significant anterior sagittal balance to decrease the overall load on patient's body. The Chiropractor also sought to decrease neural tension through the patient's body and address root cause of the patient's symptoms so they could get back to enjoying life.

Monthly reviews occurred for the first three months of care during which the patient completed subjective review forms and had posture photos taken at these reviews. At the third review, the patient had a major reexamination to recheck initial objective measures and also another EOS scan.

Outcomes

By the first month the patient reported an overall 50% improvement and almost all pain was gone. At the patient's second progress review he reported an 80% improvement in movement and symptoms. At his major reexamination (December 2021) the patient reported they were close to the best they have ever been.

A review EOS scan was taken at the three month examination in December. At this review, the scoliosis was now minimally convex right between T7 and L2 with a Cobb angle of 5° (previously 13°). A slight dextroscoliosis was present between L2 and L5, and measured 4° (previously 12°).

The thoracic kyphosis now measured 44° from T1 to T12, an improvement from the previously reported 36° measurement. The lumbar lordosis now measured 33°, from L1-L5, a marked improvement on the previous measurement of 17°. The pelvic incidence measured 39°, with sacral slope of 32° and sagittal pelvic tilt of 6°. The previous measurements had been 42°, 25°, and 17° respectively. The SVA was down to 23 mm (previously 58 mm) and the cam plumb line now at 36 mm (previously 28 mm).

At the time of the second scan, the right acetabular roof lay 7 mm lower than the left. Previously the right acetabular roof lay 6 mm lower than the left. There was now 2° of axial pelvic rotation to the left, whereas previously there was 3° of axial pelvic rotation to the right. A locking nail was present in the right femur with bony overgrowth at the site of a healed mid-shaft fracture and related to the superior nail.

The patient's cervical and lumbar ROM improved dramatically. An EOS scan taken at the eleven month mark showed marked improvements. This occurred alongside a micro-dose study. As previously mentioned, the patient had undergone a C4/5 anterior discectomy and fusion in the immediate aftermath of the MVA and prior to seeking Chiropractic care. Only a mild cervical lordosis was maintained, with no significant scoliosis present anymore. The thoracic kyphosis now measured 42° from T1 to T12 and the lumbar lordosis measured 27° from L1 to L5. The pelvic incidence had decreased to 38°, with sacral slope of 30° and sagittal pelvic tilt of 9°. This increase in pelvic tilt was likely an adaptation as the patient's body shifted as a response to changing posture achieved over the course of care, and would be corrected in time.

The SVA was now down to 8 mm (having been 23 mm in last EOS 29/12/21) and the CAM plumb line was at -37 mm. The right acetabular roof lay 5 mm lower than the left and there is 1° of axial pelvic rotation to the right. Both hip joints and sacroiliac joints remained normal.

Along with significant improvements in objective findings, the patient reported that he was now better able to complete activities of daily life. This included the ability to undertake work activities again, and function overall was now significantly better. Posture photos over the course of care show dramatic improvements.

Discussion

This case highlights the potential for significant recovery from lower back pain and radiculopathy following a motor vehicle accident through a structured program of Chiropractic care. Over the initial months of care, the patient reported a marked resolution of lower back pain and radiating symptoms into the right leg.

As function improved he was able to return to full work duties and resume everyday activities that had previously been limited by pain, such as sleeping comfortably, performing home renovations, and engaging in basic tasks like mowing the lawn, cleaning, and walking his dog.

Advanced Biostructural Correction (ABC) was particularly effective for this patient, addressing underlying biomechanical dysfunctions that contributed to his ongoing symptoms. Adjusting anterior to posterior may have been particularly effective by working in a direction in which the body had insufficient musculature to self-correct. Through consistent adjustments, ABC helped to restore postural alignment and reduce structural stressors on the spine and nervous system. This allowed the body to function more efficiently, facilitating healing and reducing the irritation that initially caused the radiculopathy and chronic pain.

Importantly, the patient adhered closely to his recommended care schedule and participated in an educational workshop early in care, where he learned practical strategies for sitting, standing,

and sleeping. His application of this advice played a key role in supporting lasting changes in posture and movement patterns.

Conclusion

Regular progress reviews, combining subjective reports with objective measures, provided clear evidence of improvement. Over time, both the patient's symptoms and his overall quality of life improved beyond his expectations, especially given that he had experienced limited benefit from other allied health interventions prior to Chiropractic care.

In reflecting on his experience, the patient emphasised that he would strongly encourage others considering Chiropractic care to 'do it and come here', underscoring the value he placed on the outcomes achieved.

This case demonstrates that with consistent, targeted Chiropractic care, even individuals with a history of significant physical trauma can experience substantial recovery. ABC, by improving structural alignment and reducing physical stressors, offers a pathway for addressing the root causes of pain and nerve irritation, leading to meaningful functional and quality of life improvements.

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About the Chiropractor

Born and raised in Sydney Thomas was exposed to Chiropractic at a young age having both an aunt and uncle who were Chiropractors themselves. After experiencing firsthand the benefits of Chiropractic he decided that was the career path he would follow. Thomas now operates in Private practice in Wallsend, Newcastle, NSW.

Prior to becoming a Chiropractor Tom worked as a community Care worker for young children with special needs and found this work whilst a challenge extremely rewarding.

Tom is an avid sports fan and grew up playing Football (soccer) and Cricket for both local and school teams, finding a true passion and love for a large range of sports. Still To this day he is an active participant in several sports. Tom Lives with his wife Carmen and their two poodles Asha and Cearra and has a love for cooking.

