Introduction

Cervicalgia is a major public health problem in most developed countries. Studies suggest lifetime prevalence rates of roughly 70%,\(^1\) with point prevalence rates of between 6% and 22%.\(^2\) This places cervicalgia among the most common health complaints experienced over a lifetime. The condition can begin in childhood as early as 12 years of age and persist through adulthood and into old age.\(^2\) Most research pertaining to cervicalgia has been aimed at the working and middle-aged segments of the population. However, it is estimated that by the year 2025 approximately one third of individuals in developed countries will be over 60 years of age.\(^3\) Anticipating the impact of population projections, interest in cervicalgia among seniors has increased. The common treatment modalities for cervicalgia are manual therapy in conjunction with home treatment and exercise, or surgery if caused by certain conditions such as canal stenosis, intervertebral foramen stenosis or severe cervical disc herniation. Manual therapy may include massage, acupuncture, physiotherapist and chiropractic care.\(^4\) Studies suggest that chiropractic care is an effective intervention for patients with chronic cervicalgia and can be used as part of a multimodal approach including advice, exercise, massage and stretching for both short and long term benefit.\(^5,7\)

Adhesive capsulitis is a shoulder disorder characterized by progressive loss of both active and passive range of motion resulting from gradual fibrosis and contracture of the glenohumeral joint, causing chronic shoulder pain.\(^8\) Studies suggest that the prevalence of adhesive capsulitis lies between 2% and 5%, primarily in females between 40 to 60 years of age.

Case Study

Resolution of Cervicalgia, Paraesthesia and Chronic Adhesive Capsulitis in a 67-Year-Old Male: A Case Study

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Abstract

**Objective:** To describe the chiropractic care of a geriatric patient with complaints of cervicalgia, arm paraesthesia and adhesive capsulitis using Activator Methods Chiropractic Technique (AMCT).

**Clinical features:** A 67-year-old male presented to the New Zealand College of Chiropractic, Chiropractic Centre with severe cervicalgia, right arm paraesthesia of two years duration, and adhesive capsulitis of his left shoulder of 20 years duration. His cervicalgia was constant and rated 8/10 at its worst on the Numeric Pain Scale, and his left shoulder abduction was restricted to 90°.

**Intervention and outcome:** The patient's vertebral subluxations were addressed using Activator Methods Chiropractic Technique. After 4 visits spread over 4 weeks he regained the full range of motion in his left shoulder and the cervicalgia subsided to 1/10 with no right arm paraesthesia.

**Conclusion:** The findings of this case suggest that chiropractic care using Activator Methods protocol for reduction of vertebral subluxations had a positive effect on cervicalgia and adhesive capsulitis in an elderly patient with a complex clinical history.

**Key words:** Chiropractic, vertebral subluxation, geriatrics, neck pain, adhesive capsulitis, paraesthesia
age, and the non-dominant arm is more frequently involved.\textsuperscript{8,9} Treatment options including home-based and supervised physical therapy, intra-articular corticosteroid injections, closed manipulations, and arthroscopic capsular release.\textsuperscript{10}

This case report describes a 67-year-old male suffering from cervicalgia with arm paraesthesia and adhesive capsulitis, which resolved while receiving chiropractic care for the correction of vertebral subluxations. The intention is to illustrate the common clinical presentation of an elderly patient with cervicalgia and adhesive capsulitis, and illustrate the outcomes of chiropractic care in a patient presenting with these musculoskeletal conditions.

\textbf{Case Report}

\textbf{History}

A 67-year-old male presented to the chiropractor with severe cervicalgia and right arm paraesthesia of two years duration, and adhesive capsulitis of the left shoulder of 20 years duration. He described his cervicalgia as non-traumatic and right sided constant pain accompanied by a feeling of pressure around the anterior aspect of his clavicles and ribs. He rated the pain 8/10 at its worst on the Numeric Pain Scale, and also reported paraesthesia in his right upper arm along with the cervicalgia. The adhesive capsulitis was diagnosed 20 years previously following left elbow surgery due to a fracture of the humeral condyle that was sustained during a fall. These symptoms had forced him to retire early from his profession, which required him to do a lot of overhead activity. The patient also revealed that he was a type 1 diabetic and on medication for high blood pressure.

\textbf{Physical examination}

Upon inspection, several postural alterations were noted including left head tilt with anterior head carriage, higher left shoulder and hip, right foot flare, and increased thoracic kyphosis. The patient had no signs of antalgia. Chiropractic spinal exam revealed the primary levels of vertebral subluxations at C1, C2, C7/T1/T2, T6 and sacrum. Limited cervical range of motion was found on extension with pain at C5 on the right, and lateral flexion and rotation more severely restricted bilaterally with pain at C7/T1 for both sides (Table 1).

Orthopaedic tests were remarkable for the following: Foraminal compression positive on the left with local pain at C7 and Adson’s test positive on the left with paraesthesia in the C5 dermatome. Neurologic examination revealed increased sensation on the right arm in the C5 and C6 dermatomes upon both soft and sharp touch. An upper extremity examination was performed and bilateral hypertonic pectoralis anterior and SCM muscles were noted upon palpation. All the orthopaedic tests that were performed for shoulder, elbow and wrist examination were unremarkable, but left shoulder abduction was limited in both active and passive movements at 90\degree.

\textbf{Diagnostic imaging}

Anterior-posterior lower cervical, lateral cervical and cervical oblique views were provided (Figure 1). There was moderate to severe degenerative disc disease and facet arthrosis throughout the entire cervical spine with spondylosis deformans and moderate uncinate arthrosis at C5 and C6. IVF stenosis was evident at C3/4 and C4/5 bilaterally with the right more severe than the left. A congenital block of C2 and C3 vertebræ was also noted. Extensive calcification of the stylohyoid ligament and atherosclerotic plaquing of the right carotid artery was evident.

\textbf{Intervention}

The patient was assessed and adjusted using Activator Methods Chiropractic Technique, which employs a specific analytical protocol and utilizes an adjusting device created by Arlan Fuhr, D.C.\textsuperscript{11,12} The initial plan of chiropractic care was two visits a week for four weeks but it was reduced down to once a week due to the patient’s travel and monetary restrictions. Each visit involved a leg length assessment, cervical syndrome test, tonal assessment, static and motion palpation, and muscle testing. Vertebral subluxations were adjusted according to the Basic Activator Methods Protocol using a high velocity and low amplitude thrust that was given to the patient using an Activator instrument. On his first visit he had a right pelvic deficient (PD) leg (short leg in prone position) that stayed short with 90\degree knee flexion (possibility 2 in the Activator Methods Protocol). The segments adjusted were L2 right, T12 right, T6 right, T6 rib left, C5 right, C2 left and left occiput. On the second visit, he had a right PD possibility 2, and levels adjusted were L4 left, T12 left, T1 right, T1 rib left, C5 right, C2 left, C1 right and occiput bilaterally. On the third visit, he had a right PD possibility 2, and levels adjusted were L4 right, L3 right, T12 left, T8 right, C7 right, C2 left, C1 right and right occiput. All the adjustments were administered with an Activator II instrument on 2 ring-setting, in consideration of the patient’s age and his osteoporotic condition.\textsuperscript{12}

\textbf{Outcomes}

The patient made a total of 4 visits over a 4 week period. On the second visit his cervicalgia had subsided to 5/10 and had not flared up since the first adjustment. On the third visit he had regained full range of both active and passive abduction of the left shoulder. At the time of the progress examination after 4 weeks of care the cervicalgia had gone down to 1/10 with no symptoms of arm paraesthesia. Sensory tests were normal with no decrease in C5 and C6 dermatomes as reported in the initial examination. Also, both the foraminal compression test and Adson’s test became normal and the patient gained increased cervical extension with no pain at C5. Cervical lateral flexion and rotation were still restricted bilaterally but no pain was noted during any motion.

\textbf{Discussion}

The present case report described a reduction in cervicalgia with arm paraesthesia and a gain of full range of shoulder abduction in a geriatric patient with chronic cervicalgia and adhesive capsulitis. Many other studies have also reported on the benefits of chiropractic care for cervicalgia and adhesive capsulitis.\textsuperscript{4,7,13} The possible mechanisms by which chiropractic adjustments may have influenced this patient are
described in several basic science publications. Cramer et al\textsuperscript{14} stated that removing vertebral subluxation complexes by spinal adjusting breaks up the adhesions in the hypomobile zygapophyseal joints (Z joints) and re-establishes a physiological range of motion. This allows Z joint capsules and surrounding structures such as spinal muscles and ligaments to improve their proprioception, which plays a role in neural activity related to spinal adjusting.\textsuperscript{14}

Another study by Haavik et al\textsuperscript{15} stated that vertebral subluxations may represent a state of altered afferent input to the central nervous system (CNS) leading to changes in its functioning, and high velocity, low amplitude adjustments improve the sensorimotor integration of the afferent input thus normalizing CNS function. The study’s findings also support the interrelationship between neck joint dysfunction and upper limb dysfunction by providing evidence of improvement to impaired upper limb proprioceptive input by cervical spine manipulation.\textsuperscript{15}

The case study’s limitations include the fact that it lacks a control group due to its practice-based nature and natural progression cannot be discounted. More studies are warranted including a more focused study especially on adhesive capsulitis to see if correction of vertebral subluxation is beneficial for people suffering from this disorder.

Caution is urged when drawing definitive conclusions from these results or when generalizing to other patients. This study would have been strengthened by long-term follow up to identify if there was a reoccurrence of symptoms. Future research is warranted and should consist of experimental clinical trials testing the effectiveness of the chiropractic adjustment in a controlled setting using similar population groups.

**Conclusion**

Chiropractic care has been reported to be beneficial to the geriatric population for many conditions including cervicalgia and low back pain.\textsuperscript{16} This case study suggests that chiropractic adjustments using Activator Methods Chiropractic Technique may have resulted in improved outcomes in this geriatric patient’s cervicalgia and adhesive capsulitis. Despite the small amount of clinical trials that have been published that investigate the efficacy of chiropractic care in patients with adhesive capsulitis, there is a growing body of case studies that indicate that chiropractic care may be beneficial in the management of adhesive capsulitis and its symptoms.

**References**

Table 1: Cervical and Lumbar ranges of motion

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<th>Cervical</th>
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<td></td>
<td>Normal</td>
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<td>R</td>
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<tr>
<td>Flexion</td>
<td>80-90°</td>
<td>90°*¹</td>
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<td>80°</td>
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<td>Extension</td>
<td>70°</td>
<td>60°*²</td>
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<td>35°</td>
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<td>Lateral Flexion</td>
<td>20-45°</td>
<td>15°*³</td>
<td>15°*³</td>
<td>25°</td>
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<tr>
<td>Rotation</td>
<td>70-90°</td>
<td>20°*⁴</td>
<td>20°*⁴</td>
<td>35°</td>
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1: Squashing pain at anterior neck and shoulder. *2: Pain at C5 right. *3: Levator scapular stretch with pain at the left C7/T1 spinous processes