CONSERVATIVE CHIROPRACTIC MANAGEMENT OF PATIENT WITH NEURALGIC AMYOTROPHY

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ABSTRACT

Objective: To describe the successful chiropractic management of a patient with Neuralgic Amyotrophy.

Clinical Features: A 37-year-old male had severe bilateral shoulder pain followed by atrophy and loss of both function and range of motion in the right shoulder girdle, particularly the regions innervated by the C5 nerve root.

Intervention and Outcome: He was initially given TramadolTM to help alleviate severe shoulder pain. Following his initial visit, he was treated with a combination of spinal manipulative therapy, vitamin supplementation, therapeutic exercises, and Russian stimulation. He was seen for treatment 34 times over the course of 8 months and regained full range of motion after 6 months as well as a restoration of his normal activities of daily living.

Conclusion: This patient avoided surgery with conservative chiropractic care. The integration of chiropractic manipulation, vitamin supplementation, therapeutic exercises, and Russian stimulation resulted in improvement in range of motion and muscle strength, which were initially lost due to neuralgic amyotrophy. *(J Contemporary Chiropr 2022;5:183-186)*

Key Indexing Terms: Neuralgic Amyotrophy; Parsonage Turner Syndrome; Plexus Neuritis Chiropractic

INTRODUCTION

Neuralgic amyotrophy (plexus neuritis, Parsonage Turner Syndrome) was first documented in the late 1800's, but it was not until 1948 when Parsonage and Turner documented a series of cases with similar presentation that led to the more commonly known name for the condition Parsonage-Turner Syndrome. (1)

The condition is relatively rare, with an estimated yearly incidence among the general population ranging from 1 in 1000 per year to 204 in 100,000 per year. (2-4) The disease has a predilection for males, with an estimated ratio of approximately 2:1 male to female and a median age of onset of 41.3 years. (5)

Neuralgic amyotrophy has a predilection for attacking the upper roots and trunks of the brachial plexus but may occur elsewhere, including the lumbosacral plexus and the lower trunk of the brachial plexus, with the latter being more commonly found in women and having worse long-term prognosis. (6)

Currently there are 2 different recognized forms of neuralgic amyotrophy, idiopathic and familial. The familial form occurs as a result of an autosomal dominant mutation of septin 9 on the chromosome 17q23 gene. (7) The idiopathic form is believed to originate from an immune or immune-mediated response; however, other mechanisms have been noted as well. (5,8) Of the 2 forms, the familial is far less common. The clinical presentation of Neuralgic Amyotrophy is the same for both idiopathic and familial with the only exception being that it is more common for familial to be relapsing compared to idiopathic. (9)

The typical presentation begins with severe pain in the shoulder girdle that can either be unilateral or bilateral and that may last last anywhere from a few days to a few months. Paresthesia and sensory disturbances are also common in this phase and may extend into the second phase as well. (10) The hallmark of the second phase of the condition is severe muscular atrophy and weakness, particularly of the muscles of the limb and shoulder girdle. This phase can last anywhere from 6 months to several years, with some people never regaining full function. (11) The prognosis is generally favorable albeit long, with 36% having an "excellent" recovery at the end of 1 year and 89% having excellent recovery by 3 years. (10)

The diagnosis of neuralgic amyotrophy is dependent on a thorough history; however, other diagnostic means can be used to help confirm the diagnosis and rule out other causes of pain. Radiological evaluation can show elevation of the diaphragm if there is phrenic nerve involvement. (12) Apart from phrenic nerve involvement,

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radiological assessments otherwise provide little value in assessing Neuralgic Amyotrophy. (13)

Electrodiagnostic evaluation also plays a critical role in the evaluation of neuralgic amyotrophy. This condition preferentially targets proximal nerves and nerve roots, with the most common lesions occurring in the pure motor nerves, particularly, the suprascapular and long thoracic nerves. (14)

Our paper discusses the successful management of a patient with this condition who underwent a course of chiropractic care.

CASE REPORT

A 37-year-old man had excruciating bilateral shoulder girdle pain that localized to his right shoulder and upper arm. He initially sought care from his primary care doctor and was provided pain medication and a steroid pack. Pain reduction was noted with medication but 3 days following he lost active range of motion of the right shoulder in abduction at 15 degrees. Passive range of motion of his right shoulder was normal. Sensory loss was noted over the lateral aspect of the middle deltoid muscle as well as atrophy of supraspinatus muscle.

Imaging and diagnostic testing included MRI of cervical spine, right shoulder, and right brachial plexus as well as a nerve conduction test. Results from tests included C5-C6 right paracentral disc protrusion as well as right axillary nerve neuropathy with denervation of the deltoid muscle. Anterior cervical disc fusion was recommended by a neurosurgeon, but the patient declined and sought chiropractic care.

Chiropractic treatment included spinal manipulation to the thoracic spine, instrument-assisted soft-tissue manipulation to the musculature of the rotator cuff and Russian stimulation to the supraspinatus muscle. Strengthening exercises for the rotator cuff muscles were added 8 weeks into treatment. In addition, a vitamin supplementation protocol was recommended that included Stress Plus vitamin B Complex once daily, 600 mg of alpha-lipoic Acid once daily, 100 mg of CoQ10 once daily, and a Men's One-A- Day Multivitamin.

The patient received conservative treatment over the course of 7 months. His range of motion improved to 180 degrees of abduction by 6 months, though muscle weakness and atrophy of the supraspinatus remained. The first month of treatment the patient was seen 3 -4 times a week for spinal manipulation. This included cervical flexion distration, assisted shoulder range-of-motion exercises and Russian stimulation. This then decreased to 2 times a week for 4 weeks. He was given home exercises that included finger wall walking, circumduction or the arm and using a pulley to keep his arm moving. He was seen at week 8 of treatment for 2 visits prior to clinic shutting down for COVID. When he returned a month and a half later he was able to perform his previous activities of daily living. During the time away from clinic he performed strengthening exercises and continued supplementation. He was then seen once a week for 6 weeks for continued adjustments, which progressed to cervical diversified adjusting, Russian stimulation, and soft tissue care on any hypertonicity found in the entire shoulder girdle, to simulate continued improvement in overall strength and sensation of lateral aspect of arm. Home exercises and nutritional supplementation were continued for 6 more weeks, and he was instructed to return as needed. At the end of the 6 weeks, a final evaluation was performed in which all strength and range of motion returned and he was able to perform all previous activities of daily living.

DISCUSSION

Currently, no global treatment exists for neuralgic amyotrophy. During its initial onset, opioids may help alleviate the pain, but offer no benefit in terms of recovery; in addition, the risk of addiction has to be considered. Research indicates that oral prednisolone administered early in the disease can shorten the recovery time; however, this evidence is purely observational and no randomized control trials exist to definitively state its efficacy. (15)

In terms of recovery, traditional physical therapy and occupational therapy focused on strength training has a greater probability of being ineffective or exacerbating symptoms than actually helping the patient. (16) A small body of research has focused on scapular retraining as a means for helping the patient regain control of symptoms, and initial research has been promising; however, more research is still needed. (17)

The addition of nutritional supplementation with PTS is important for the neuroprotective properties that they possess. B vitamins known as "neurotropic" B vitamins play an important and essential role in the central nervous system (CNS) and peripheral nervous system (PNS) (18). In particular, vitamin B1, B6, and B12 are essential for the health of the nervous system and synergistically have been shown to improve neuropathy, motor control, nociceptive and neuropathic pain. Vitamin B1 (thiamine) plays a significant role in the conversion of carbohydrates, which in turn provides energy to nerve cells. Indirectly, Vitamin B1 is necessary for synthesis of myelin, playing a role in nerve conduction velocity. Vitamins B6 (pyridoxine) and B12 (cobalamin) both are responsible for the synthesis of neurotransmitters and myelin sheath. Vitamins B1, B6, and B12 have been seen to work synergistically and should be taken together.

Similar to neurotropic B vitamins, alpha-lipoic acid (ALA) is important for its scavenger of reactive oxygen species (ROS) and antioxidant properties that have been shown to alleviate symptoms of neuropathies and neurodegenerative disorders. (19). Coenzyme Q 10 has shown to significantly decrease inflammation which plays a significant role in neurological symptoms. (20)

CONCLUSION

There is a small body of theoretical research as to how chiropractic care can help aid in the recovery time of neuralgic amyotrophy, and given the relative uncertainty of other treatment methods, spinal manipulative therapy may offer benefits in the recovery time of neuralgic amyotrophy. Spinal manipulative therapy has been shown to transiently facilitate alpha-motor neuron excitability following administration of the therapy. (21) The results of this case suggest that the use of chiropractic care along with supplementation and exercises resulted in a reduction of neuralgic amyotrophic symptoms. However, more research is needed to understand the effects of conservative care and neuralgic amyotrophy.

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