

## CASE REPORT

# Complementary and Alternative Medicine's Effectiveness in Reducing High-Impact Chronic Pain and Opioid Consumption: A Case Report in the Veteran Population

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### Abstract

Chronic pain is a condition affecting millions of Americans annually. Veterans, as a population cohort, are often afflicted with chronic pain that is more complex, with higher rates of psychiatric and social comorbidities when compared to the general population. In this case report, we describe a veteran with major depressive disorder and alcohol abuse afflicted by high-impact chronic pain, initially treated and then maintained on high dose opioids developing dependency, who was successfully weaned off and

achieved adequate pain management using complementary and alternative medicine, namely Qi gong. We conclude that complementary and alternative medicine offers a safe and effective option in providing pain relief using nonpharmacological means and thus avoiding undesired effects. We postulate that as research in this area increases, the demand for and the availability of complementary and alternative medicine will expand.

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### Introduction

Chronic pain is a condition affecting millions of Americans annually and is generally defined as pain that has lasted for more than 3 months and persisted beyond the expected healing time. In 2010, an Institute of Medicine study documented that about 100 million adults (approximately 30% of American adults) have some form of chronic pain.<sup>1</sup>

Treating chronic pain has been a challenge due to its impact on function and mental health related to stress and mood disorders, confounding the loss of function in a patient's daily life. Veterans, as a population cohort, are often afflicted with chronic pain in direct relationship to their service in the military due to traumatic injuries incurred in the field and requirements to carry heavy loads. It is estimated that in older veterans, the rate of chronic pain approaches 50% with a steady increase over the last 2 decades of their life.<sup>2</sup> Their pain tends to be more complex, with higher rates of psychiatric and social comorbidities, such as substance abuse, depression, post-

traumatic stress disorder (PTSD), and early work disability, which represents a challenge and opportunity for clinicians specializing in pain management. In 2016, the US Department of Health and Human Services described similar symptoms, ongoing for 6 months or more, as high-impact chronic pain.<sup>3</sup>

Among pain conditions, chronic low back pain (cLBP) collectively is the most frequent pain condition and causes substantial suffering, decreased functional capacity, lower quality of life, and disability.<sup>4</sup> Chronic pain management in the US has an overall cost of \$565 to \$635 billion yearly,<sup>1</sup> with cLBP accounting for at least 100 billion yearly,<sup>5</sup> representing more than 15% of the expenses. Given that cLBP is more prevalent in the veteran population than in the general community, the cost of cLBP is likely higher relative to the total costs.

Recent research has provided evidence that the chronic use of opiates for patients suffering from chronic pain carries greater risks than benefits. This risk profile includes the potential for overdose-related death, dependency, and even worsening of pain while using the medication. The opiate prescription drug epidemic has caused over 750 000 overdose-related deaths since 1991.<sup>6</sup>

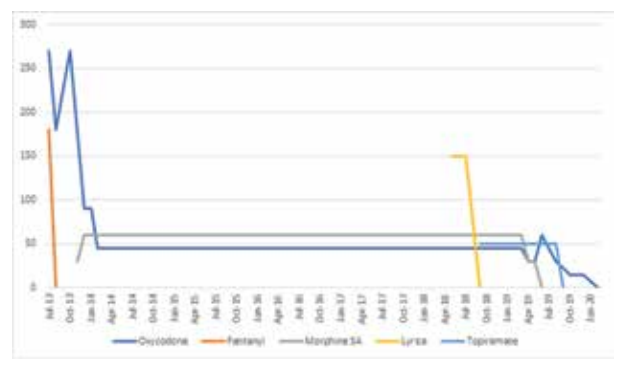
The 2010 Army Surgeon General Pain Management Task Force Report underlined the challenges in providing adequate pain management for veterans and military families. The report emphasized the need for an "integrative and interdisciplinary approach" incorporating "integrative and alternative therapeutic modalities into a patient-centered plan of care."<sup>7</sup> In accordance with this, in 2016 as

**Figure 1.** The Whole Health Model



From “The Whole Health Model,” Pain Management Collaboratory.

**Figure 2.** Opioids and Adjuvant Analgesics Taken Since Back Surgery



part of the Comprehensive Addiction and Recovery Act (CARA), the Department of Veteran’s affairs began offering evidence-based CAM (complementary and alternative medicine) approaches to providing safe and effective care for veterans suffering from chronic pain. These offerings were a part of a cultural shift toward patient-centered care, focusing on empowering the veteran to “take charge of their health and well-being and live their life to the fullest.”<sup>9</sup> Figure 1 illustrates this concept by placing the veteran as an active participant at the center of their health, surrounded by the awareness of how different elements in their lives interact with their well-being.

In the following report we describe a veteran with cLBP and a history of multiple surgeries, initially treated and then maintained on high dose opioids, who was successfully weaned off and achieved adequate pain management using complementary and alternative medicine—namely Qi gong.

**Case Presentation**

We present the case of an adult male with medical comorbidities of alcohol dependency and major depressive disorder who is experiencing chronic back pain that started after a motorcycle accident while in the Air Force in 1967. During the motorcycle accident, his vehicle swerved off the road onto an embankment, requiring immediate transport to the emergency room. His initial workup was limited to an x-ray of the lumbar spine, which was reportedly negative for acute bony findings. He was subsequently released and cleared to return to full duty.

Over the next few years, the patient developed constant and progressively worsening axial back pain of moderate to severe intensity, which limited his functional ability and tolerance. The pain was further characterized as “viselike” along his low back, radiating to the posterior left lower extremity to the ankle—worse with bending, lifting, and twisting. The pain was also exacerbated by prolonged sitting or standing. The veteran had not been to physical therapy at that point.

In 2002, he had a severe exacerbation of his symptoms. A lumbosacral magnetic resonance imaging (MRI) at that time revealed a synovial cyst at L5-S1. Due to continued worsening pain, the patient underwent surgery for excision of the cyst. Minimal relief was noted after surgery. His post-operative symptoms were initially managed with nonsteroidal anti-inflammatory medications, physical therapy, and epidural steroid injections with very limited short-term relief.

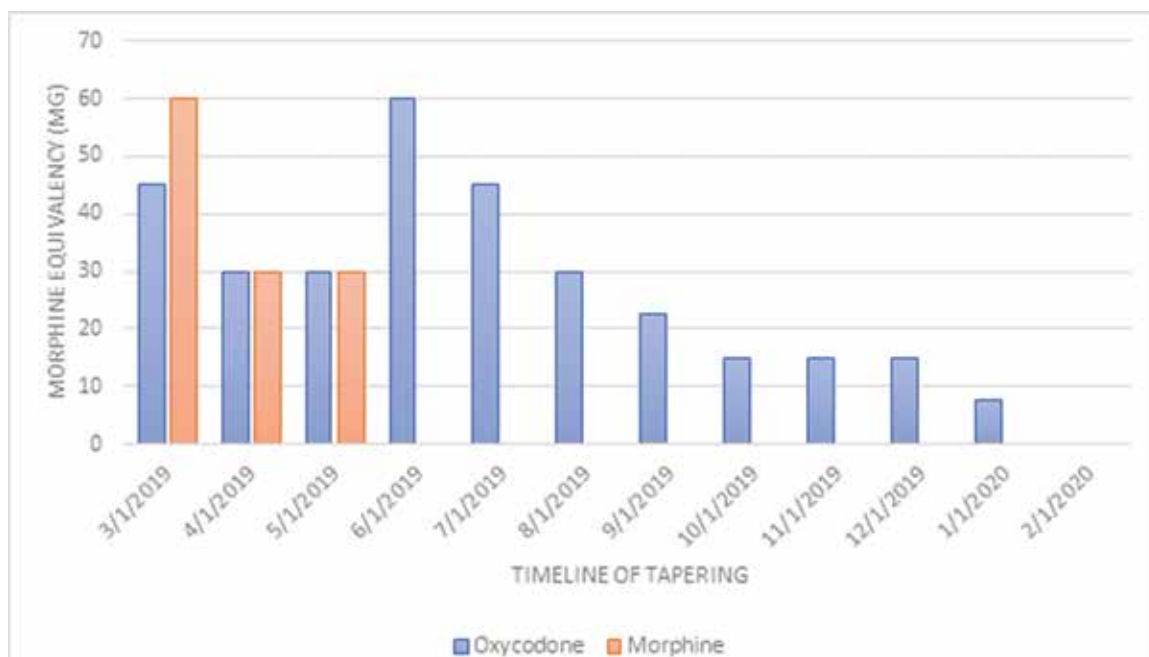
In 2009, the patient eventually underwent a left L3-L4 microdiscectomy. The post-operative course was complicated by discitis and osteomyelitis at L3-L4, requiring 6 weeks of intravenous antibiotic treatment. During this time, the patient was started on a fentanyl patch 25 µg/h × 72 hours to manage pain. Over the next few years, the dose of the fentanyl was gradually increased to 75 µg/h × 72 hours under the treatment of a private pain management specialist (see Figure 2).

Around 2012, experiencing inadequate relief, he decided to switch his pain management care to the Veterans Administration (VA) health care system. The pain management provider at that time changed his medications to oxycodone IR (immediate release) 30 mg every 4 hours and enhanced his treatment with physical therapy and acupuncture. The patient noted both modalities provided minimal relief.

Over the next few years, his medications were changed to a combination of long-acting and short-acting opiates; namely morphine sulfate SA (sustained-action) 30 mg twice daily and oxycodone IR 15 mg twice daily as needed (Figure 2). As a consequence of increasing his opiate medication, the patient developed opioid-induced constipation, and was likely developing a degree of physiological opioid dependency.

In 2018, the patient and his wife went on a vacation, which was cut short due to an exacerbation of pain and

**Figure 3. Opioid Tapering Schedule**



limited access to his medications. He was unable to have them dispensed at another VA facility in the area where he was vacationing. Frustrated and feeling like a “slave to the drug,” he found himself in a functional decline. In 2019, seeking reprieve, he sought a consultation with a spine specialist. MRI of the lumbar spine performed at the time reported severe degenerative disc disease L2-L3 through L5-S1 levels and likely broad-based posterior disc herniations at L2-L3 and L4-L5 levels. The consultant did not recommend further surgical intervention and encouraged the patient to continue conservative management with medications.

With continued dissatisfaction and experiencing the adverse effects of his opiate regimen, the patient voluntarily requested to taper off his medications and find new ways to manage his pain. The patient was referred to the Integrative Medicine Clinic by his primary care provider after a discussion on alternative modalities that might be able to address his symptoms.

The patient was recommended to try gentle yoga, medical Qi gong, and aromatherapy. The patient noted, “as soon as I walked into a Qi gong class, I noticed that I was able to concentrate more. I really liked the slow, repetitive movements which relieved my back pain immediately.” He had attended the group Qi gong classes weekly since February 2019 until he transitioned to solo practice one year later. In comparison, he did not find the same relief in gentle yoga classes or with a trial of various essential oils. The essential oil therapy was directed to ease tension, anxiety, pain, and restlessness. The gentle yoga classes were group-based classes that were attended a few times a week for about 3 months. Initially, the yoga classes

noted a 30% to 50% drop in his average pain score that unfortunately was not sustained for this particular veteran.

He worked diligently with his pain management provider to optimize medications and traditional therapy. On physical examination, pain was reported with palpation over the lumbosacral paraspinal muscles, limited extension, and pain with facet loading. Straight Leg Raise test was negative. Neurological exam including muscle tone, bulk, and strength was within normal limits. The sensory exam was unremarkable. Deep tendon reflexes were intact and symmetric. Gait was within normal limits and posture was slightly flexed. He also reported an improvement in his overall range of motion and activity tolerance.

Interventional procedures, including an epidural steroid injection, were of limited benefit and thus he focused on optimizing the medication regimen. The patient slowly weaned off opiates over a 9-month period, while optimizing his care through CAM. His tapering was based on his clinical evaluations, progress, and comfort, and they varied from 20%-30% decrease in daily morphine equivalency. He completely weaned off opiates around February 2020 (see Figure 3). Of note, he had been maintained on the same opiate dosing for approximately 5 years.

Along the way, the patient was assisted in developing realistic expectations of his pain symptoms. He now states that he is, “aware of the pain, but it no longer interferes with my activities,” and “aware of my limitations, but I can do things around the house and stay active.”

## Discussion

This case illustrates successful management and treatment of cLBP in a patient with presumed opioid dependence and a complex surgical and psychiatric history using a multimodal approach toward pain management using CAM modalities. Moreover, it exemplifies functional improvement in a high-impact chronic pain case, where according to Herman, et al., health care costs, and opiate use and dosages were significantly increased versus those with lower-impact chronic pain.<sup>9</sup> This difference could be attributed to the variance in pain intensity and corresponding function impairment. Overall annual per person health care costs for those with high-impact chronic pain (\$14 661 SE: \$814) were more than double those with low-impact chronic pain (\$6371 SE: \$557). Those with high-impact chronic spinal pain also used opioids at a rate almost 4 times that of those with lower-impact chronic pain (48.4% vs 12.4%), and on average used over 5 times the morphine equivalent daily dose in mg (15.3 SE: 1.4 vs 2.7 SE: 0.6).<sup>10</sup>

Accordingly, comprehensive pain management, inclusive of CAM modalities as in this case, reduces pain, improves function, and decreases health care costs. Furthermore, such an approach avoids unnecessary interventional and surgical procedures that have their own inherent risk for complications. Likewise, this minimizes chronic use of medications and their adverse effects such as dependency, addiction, or respiratory depression in the case of opiates.

A common modality offered in the complementary and alternative pain management model is Qi gong, which combines gentle body movements with breathing and mindfulness. In clinical trials, movement-based therapies such as Qi gong and tai chi have been shown to improve physical functioning and reduce risk for falls, hypertension, depression, and anxiety in older adults.<sup>11</sup>

To our knowledge there are no randomized controlled trials (RCTs) comparing Qi gong with placebo or any other interventions for the management of cLBP. However, Yuan et al. in a systematic review and meta-analysis of traditional Chinese medicine modalities reported 2 RCTs in which Qi gong was compared to no intervention for management of chronic neck pain with significant improvement in pain based on the visual analog scale (VAS) at 3- and 6-months post-intervention in the Qi gong group.<sup>11</sup>

Houzé et al. did an umbrella review of CAM modalities that showed that although there is great variability in the methodology of the studies, graded motor imagery, hypnosis, and yoga have been shown to provide moderate-to-high level relief for chronic pain.<sup>13</sup> Acupuncture also was found to produce a significant medium-to-large effect on chronic pain.

Our patient's journey through pain management parallels the general thinking during the '90s and early 2000s regarding pain relief as the priority with minimal

reconciliation of the risk-benefit ratio of medications used. This often means escalating dosages and frequent use of opiates for pain control. Unfortunately, this resulted in the daily use of opiates and for longer than the recommended timeframe. This led to the development of physiological dependency and tolerance. The Department of Veterans Affairs has been at the forefront of the utilization of CAM therapies for veterans with chronic pain. Through trying various CAM therapies, with the ultimate benefit gained from Qi gong, our case subject was able to identify nonpharmacological alternatives to his pain management regimen through CAM. Most CAM modalities have the advantage that once they are learned, they can be performed by the patient in almost any setting or environment, with minimal or no added costs. He explains this transformation in his own words, prior to complete opiate cessation, as follows: "I was willing to try anything to get off opioids. After the first Qi gong class I noticed a definite relief from my pain. Every subsequent class was the same. I felt better after each session. My wife and friends noticed my excitement and positive outlook on life since my involvement with the VA integrative medical programs. Qi gong has become an important tool in my effort to wean off opiates. It has enabled me to nearly quit them completely with minimal discomfort. The VA pain management program and their continual support have been able to help me achieve what I thought was impossible; pain management without drugs."

## Conclusion

Providing pain management in the midst of the opioid pandemic has become an art. Complementary and alternative medicine offers options to augment pain relief using nonpharmacological means. This case illustrates a successful transition from the medical model of care that focuses on the use of medications and defines pain as a process that is solely physical and linked to injury. Rather, the use of CAM is based on a disease model that incorporates self-management strategies that decrease the overdependence on medications and recognizes pain as a complex process that may exist in the absence of injury.

As the evidence for the effectiveness of CAM in chronic pain management mounts, we will be able to prevent the sequelae from the chronic use of opiate medications, while adequately treating the pain. As a result, we anticipate that the demand for and the availability of CAM will continue to increase. The use of multimodal approaches in CAM targets the mind and the body, which will provide pain relief while contributing to a person's overall well-being.

Unfortunately, as of now CAM is not widely available or covered by medical insurance. This gap may be overcome through quality research that is able to expand evidence in support of its short- and long-term effects. This body of evidence is hypothesized to thereby increase acceptance and availability within the general medical community.

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### Conflict of Interest

The authors have no conflicts.

### Financial Disclosures

The authors have no financial sources to disclose.

### Informed Consent

Consent was given from the patient for the publication of this report.

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