

# **The Role of a Chiropractor Upon Presentation of Dermatomyositis to a Chiropractic Clinic: A Case Report**

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## **ABSTRACT**

Patients often seek chiropractic care for muscle pain and joint aches, but when other symptoms such as skin rashes, weight loss, and weakness present, it is important for the clinician to quickly re-assess and refer the patient to the proper specialist for prompt diagnosis and treatment. It is especially important for the chiropractic clinician to be able to recognize when an inflammatory myopathy presents to their practice. In this case, after a failed chiropractic treatment trial, the patient was referred back to his primary care provider and ultimately was diagnosed with dermatomyositis. He was then able to receive the appropriate treatment for his condition which did include rehabilitative therapy.

## **INTRODUCTION**

Dermatomyositis (DM) is a rare idiopathic myopathy which can be difficult to diagnose due to its varied clinical features. The pathogenesis of this condition is not completely understood, and it is thought that there are several genetic, environmental, and immune factors that play a role. This condition has cutaneous, muscular, and systemic manifestations.<sup>1</sup> DM can be differentiated from variable idiopathic inflammatory myopathies by which muscle groups are affected and by histopathological findings. DM specifically presents with symmetric proximal skeletal muscle weakness. Muscle biopsy typically shows perivascular and perimysial inflammatory infiltrate, perifascicular atrophy, and microangiopathy. Skin biopsy findings include vacuolar changes of the basal layer,

increased lymphocytic infiltrate, and increased mucin deposition in the dermis. It can affect other systems to include the pulmonary, cardiovascular, and gastrointestinal systems.<sup>2</sup> The incidence of DM is approximately 9.63 per 1,000,000, according to a retrospective population-based study performed between 1967 and 2007 in Olmsted County, Minnesota.<sup>3</sup> In a nationwide population study in Taiwan which examined records from 2003 through 2007, it was found that the mean age at diagnosis was 44 with a female predominance.<sup>4</sup>

Muscle pain and weakness are common reasons for patients to seek chiropractic care. Non-specific back pain of muscular origin, for example, is estimated to affect 60 to 85% of the population at some point in a person's lifetime.<sup>5</sup> It is important for the astute clinician to carefully consider differential diagnoses for presentations which are not completely characteristic of a mechanical pain source, and to be aware of how to recognize less common and more serious conditions that necessitate immediate referral, especially as they evolve. Various idiopathic myopathies are examples of conditions that may present to a chiropractic office, and the purpose of this case study is to review the presentation of a patient who presented to a chiropractor with hip pain and weakness, and was ultimately diagnosed with DM.

## CASE REPORT

An 87-year-old male veteran presented to his primary care provider (PCP) at a Veterans Affairs (VA) Health System clinic with chief complaint of low back pain and bilateral hip pain, 6 days after initial onset. He explained on the day of initial onset, he played golf and then went to have drinks at a bar. When he went to get off his barstool, he immediately experienced transient pain at the right lateral hip and groin. One to two days later, he began experiencing the same quality pain in the left lateral hip and groin. Upon exam, he was found to have right inguinal pain with extension of the right hip. All other ranges of motion of the right and left hip were full and without pain. He reported mild tenderness to palpation over the right greater trochanter. His PCP ordered lumbar and hip radiographs as well as a lumbar MRI, provided an analgesic gel, advised him to stop walking and playing golf, and prescribed piriformis stretches. When he presented back to his PCP two weeks after onset of pain, he complained of a rash located on his scalp, neck, arms, and back (**Figures 1-2**). Although he felt the rash had been present over the past 6 months, the pain and irritation from it had worsened over that past week. He denied any use of new clothing, foods, medications, laundry soaps, lotions, or contact with anything out in the yard. He also reported worsening of his hip pain. It was noted he had an erythematous rash with excoriations on his back, scalp, neck, and a slight rash on both upper extremities. He was subsequently given Aquaphor cream and oral prednisone (prednisone was for both the rash and the hip pain) by his PCP. The next day he underwent lumbar and hip radiographs, which found degenerative changes only. The lumbar MRI without contrast revealed a mild disc bulge and facet hypertrophy with small bilateral facet joint effusions at L4-L5. There were mild facet joint arthritic changes at L5-S1. The PCP referred the patient concurrently to dermatology for suspected drug reactions, chiropractic/acupuncture for mechanical hip pain, and neurosurgery for back pain and lower extremity weakness (**Table 1**).



*Figure 1*



*Figure 2*

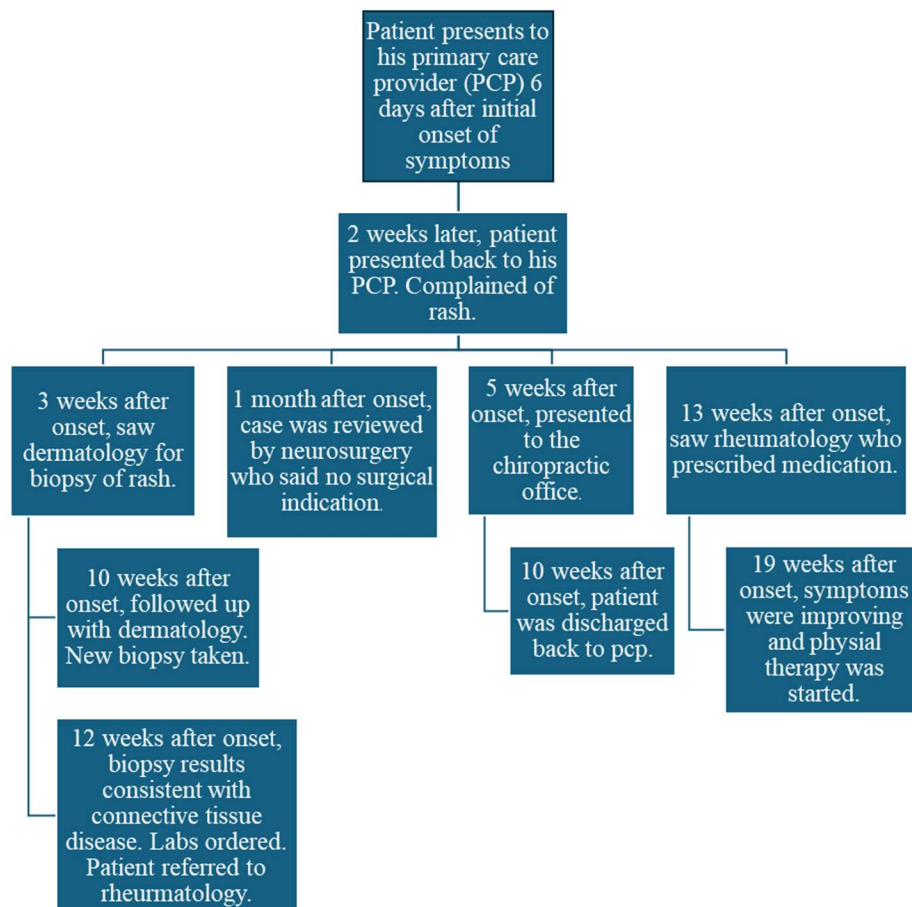
The patient had an appointment with neurosurgery 4 weeks after the onset of symptoms and 1 week before his chiropractic consult. Neurosurgery determined surgery was not indicated. Physical therapy, pain medications, and referral to pain clinic were recommended, although not pursued. At his chiropractic consultation, he described the pain as above and stated that the pain had prevented him from going on daily walks and golfing. His wife, who was in attendance, explained he was normally extremely active. The patient perceived that due to immobility, he was experiencing increased aching and new onset of weakness in the legs and arms. He reported only experiencing pain with hip movement and denied pain at rest. The patient provided a verbal pain score of 7/10 with movement and qualified the pain as “throbbing.” The only known palliative measure was ice. The patient denied temporal factors, bowel/bladder dysfunction or incontinence, and saddle anesthesia. On review of systems, he had comorbidities of chronic obstructive pulmonary disease, diabetes mellitus type 2, squamous cell carcinoma, coronary artery disease, history of cholecystectomy, history of prostate cancer of unknown grade and status post radical prostatectomy, renal failure, atrial fibrillation, hypertension, and mixed hyperlipidemia. On examination, his lumbar range of motion was within normal limits and without pain. Active range of motion of the hips showed significant difficulty and partial inability to move his hips into flexion, abduction/internal rotation, and abduction/external rotation. Passive range of motion was full without pain provocation. Orthopedic examination of the lumbar spine was unremarkable. FABER test (flexion, abduction, and external rotation of the hip) was positive bilaterally for ipsilateral hip pain. He was neurologically intact with equal and symmetrical deep tendon reflexes, adequate muscle strength, and intact sensation to light touch in the bilateral lower extremities. He had a non-tender lumbar spine and hypertonicity/tenderness was noted only at the bilateral gluteus medii. A large red rash was observed across the entire lumbar spine and all extremities, but it was noted the patient would be following up with his private dermatologist and VA dermatologist for further evaluation.

The patient was recommended a trial of chiropractic care with the addition of acupuncture because he reported great success with acupuncture in the past. Although diabetes mellitus (DMII) is a relative contraindication for acupuncture, the patient’s DMII was stable without evidence of peripheral neuropathy or poor wound healing on physical exam. He underwent 8 chiropractic visits and 7 acupuncture treatments within 4 weeks. Chiropractic treatment consisted of manual soft tissue therapy to the bilateral gluteal muscles on the first visit and drop table technique to the pelvis. Every subsequent visit included drop table to the pelvis and acupuncture treatment. Needles were placed in Ashi (tender) points over the bilateral femoroacetabular joints and sacroiliac regions (not where rash was present). During the first 6 treatments, the patient noted decreased pain and improved function in that he could walk and flex his hips more easily. On visit 7 though, the patient returned stating he felt a decline in his function again, noting he could not flex his hips to take off his pants at night. On visit 8, the patient’s bilateral hip pain was fully relieved, and he rated the pain 0/10 but his function drastically declined, as he presented that day in a wheelchair because he did not think he could ambulate from the parking lot into the clinic. The patient was discharged and promptly referred back to his PCP due to suspicion of a non-mechanical source for his condition.

3 weeks after onset of pain, the patient underwent evaluation with two dermatologists (one

at VA and one in the private sector). At the VA dermatology clinic, examination was remarkable for scattered erythematous and some eczematous appearing patches, some scaly, some crusty on the back, scalp, and neck. Shave biopsy was performed, and the findings were consistent with interface dermatitis. This pattern is consistent with an inflammatory reaction, often seen in drug eruptions. He was diagnosed with a reaction to doxycycline, earlier prescribed to him for rosacea. The patient reported their non-VA dermatologist said he likely had a reaction to hydrochlorothiazide after two punch biopsies were assessed. His medications were altered but his rash continued to worsen.

At one month follow up with VA dermatology (10 weeks after onset), the patient's symptoms had not changed. The dermatologist then suspected dermatomyositis, and a shave biopsy was repeated for the rash on the right arm. Labs were ordered and indicated a creatine kinase (CK) level within normal range, although this was after he underwent treatment with 3 rounds of oral corticosteroid prescription.<sup>6</sup> It is unknown if the lab draw overlapped with the steroid medication use. The biopsy returned 2 weeks later with results indicating connective tissue disease that appeared consistent with dermatomyositis. He was subsequently referred to rheumatology for confirmation and management of dermatomyositis. The patient was prescribed 20mg prednisone twice daily, and azathioprine 50mg once daily. At 6 weeks follow up with rheumatology, his symptoms had improved, and he began physical therapy to address acquired extremity weakness.



*Table 1 – Timeline of referrals and progress*

## DISCUSSION

Idiopathic inflammatory myopathies (IIM), including dermatomyositis, are considered to be a rare group of autoimmune disorders that mostly affect skeletal muscle, however other systems can also be affected. The primary clinical feature of myositis is noted by progressive and symmetrical muscular weakness in the proximal upper and/or lower extremities. In the case of dermatomyositis, there are additional clinical symptoms including skin involvement. It is unclear what causes the damage to the skeletal musculature; however, it is important to consider there are multiple immunopathogenic pathways in inflammatory myopathies. Of the IIM, dermatomyositis is more common, and can cause skin rash, muscle weakness, and is typically associated with elevated CK.<sup>7</sup> The pathophysiology of dermatomyositis includes perivascular inflammatory infiltrates in the interfascicular septae to include B cells, macrophages, dendritic cells, and CD4 T cells – all class II major histocompatibility (MHC) molecules and indicative of a significant immunogenic response. DM is also associated with five autoantibodies (anti-TIF1- $\gamma$ , anti-MDA-5, anti-SAE-1, anti-Mi-2, and anti-NXP-2) which can vary in proportion depending on the patient's country of origin, and result in different symptomatic expression.<sup>8</sup>

DM tends to become more prevalent as the patient ages and is more common in the female population (20 vs 3.7 per 100,000 person-years).<sup>7</sup> Patients with DM typically exhibit dermatological symptoms either preceding or simultaneously with muscular weakness. In the case of this patient, he had reported a rash which had been present for 6 months prior to the onset of his weakness. This case is also interesting because the patient reported an inciting event to muscular pain, causing him to be referred initially to the chiropractic clinic. Upon examination, mechanical pain was elicited and was then treated to resolution, however the patient was referred back to his PCP due to progressive weakness. It is important to evaluate response to care throughout the care trial, and to consider other symptoms outside of the musculoskeletal system. Prompt care by the appropriate specialty was warranted and ultimately resulted in the appropriate management of the patient's condition.

## CONCLUSION

The chiropractic clinician plays an integral role in the evaluation and management of acute, subacute, and chronic musculoskeletal conditions. As such, a vital part of the chiropractic clinician's duty is to recognize the signs and symptoms of musculoskeletal complaints with non-mechanical origin. The clinician must be watchful for progression of a condition and re-evaluate to come to a change in plan when warranted. It is imperative that when such conditions are suspected, the appropriate medical team members are consulted to provide holistic care to the patient. In this case, a patient presented to the clinic with bilateral hip pain but during the course of care, his condition evolved. The underlying diagnosis of dermatomyositis – a rheumatological disorder – could not be appropriately managed solely with manual therapies. One of the sequelae of this disease is muscular weakness, but the underlying inflammatory etiology needed to be addressed prior to including complementary therapies to address his pain and weakness. The chiropractic clinician's training equips them to evaluate conditions of varying etiology, and given the unique privilege of multiple patient encounters within a short period of time, the chiropractic clinician can closely examine and monitor new or progressive symptoms and report them to the appropriate providers. This

effectively makes the chiropractor an essential part of the patient's care team, working in complement with the primary care providers to ensure the patient receives the most appropriate care and to prevent chronic pain conditions that may result in poor quality of life and function.

Once appropriate medical management is implemented, it is crucial for the patient to engage in exercise, along with physical and occupational therapies.<sup>9</sup> The literature demonstrates exercise is both safe and beneficial for patients with IIM. As a benefit, patients can begin to experience improved muscle strength and aerobic capacity. In a randomized controlled trial that evaluated the effect of aerobic exercise with patients who had a diagnosis of DM and polymyositis (PM), there was demonstrated increased isometric peak force, enhanced exercise tolerance, and improved anaerobic threshold intensity, however no change in muscle enzyme levels. Resistance exercises were also found to be safe early on in treatment. In patients with chronic DM and PM, there was demonstrated enhanced muscle function without any evidence of adverse events. As strength improves and CK normalizes, a more comprehensive exercise regimen can be implemented.<sup>10</sup>

While the traditional role of the chiropractor is considered to be a spinal manipulative therapy provider, the chiropractor's role in patient care for musculoskeletal conditions is more extensive and includes the ability to educate patients through progressive exercise programs.<sup>11</sup> In a study specifically evaluating the descriptive data of chiropractic care in North America (current location of both authors) over the last decade, manipulative therapy was identified as the most common therapy. When evaluating the other non-adjustive therapies, patient education and exercise were the most widely utilized amongst the providers.<sup>12</sup> These studies demonstrate an additional role chiropractors may play in managing patients with musculoskeletal conditions. With regard to this specific patient, he was referred to an outside physical therapist to begin his exercise regimen.

## **LIMITATIONS**

This is a single patient case report, and the results may not be generalizable to other individuals presenting with similar conditions.

## **CONSENT**

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

## **DISCLAIMER**

Contents do not represent the views of the U.S. Department of Veterans Affairs or the United States Government.

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