

# Case Report of Fibromyalgia

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## ABSTRACT

Fibromyalgia is a common chronic syndrome defined by core symptoms of widespread musculoskeletal pain and stiffness throughout the connective tissues that support and move the bones and joints. Other common symptoms include cognitive difficulty, headache, paresthesia, morning stiffness, fatigue, and sleep disturbance. Fibromyalgia is increasingly understood as one of the several disorders that are referred to as central sensitivity syndromes. Tender points are often detected in patients with fibromyalgia. We report a case of 43-year-old female who presented with painful nodule over the palm and later developed generalized pain. Combination therapies with pregabalin, nortriptyline, and ketamine infusion relieved her symptoms over time. The management of fibromyalgia requires a multidimensional approach including patient education, cognitive behavioral therapy, exercise, and pharmacologic therapy. We present a case of fibromyalgia, which was initially treated with a combination of above modalities with partial benefit but actually benefited via ketamine infusion.

**Keywords:** Fibromyalgia, Ketamine, Pulsed radiofrequency, Tender points, Widespread pain.

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## INTRODUCTION

Fibromyalgia syndrome (FM) is a chronic pain syndrome characterized by generalized pain, tender points, disturbed sleep, and pronounced fatigue. Pain in FM is consistently felt in the musculature and is related to sensitization of the central nervous system (CNS) pain pathways.<sup>1</sup>

The pathogenesis of FM is unknown; however, abnormal concentration of neuropeptides in the CNS and alterations of the hypothalamic-pituitary-adrenal axis have been described.<sup>2</sup> There are findings indicating a gene in the serotonergic, dopaminergic, and catecholaminergic systems in the etiology of FM. These polymorphisms affect the metabolism along with transport of monoamines, so they might lead to disturbed sensory processing and an altered stress response.<sup>3</sup>

By definition, FM encompasses the extreme end of chronic widespread pain in the general population and is a chronic illness that disproportionately affects women (9:1). The current model of understanding fibromyalgia is that it is one phenotype of several overlapping syndromes that demonstrate disordered pain regulation referred to as central sensitization.<sup>4-6</sup>

In 1990, the American College of Rheumatology (ACR) published diagnostic criteria for FM, which resulted in increasing recognition of this syndrome. The prevalence of FM in the United States is estimated to be 2-4% of which approximately 80% are women between the ages of 20 years and 60 years.

## CASE DESCRIPTION

A 43-year-old female was referred to our clinic for chronic pain relief. The patient was apparently alright 5 months back. She suddenly developed pain on her left palm; pain was of shooting type and continuous. There was no aggravating or relieving factors. The patient observed tender swelling over the left palm measuring 1 mm in diameter. Pain originated in the palm and later spread over whole of the upper limb as well as the neck region. Pain often was intolerable. She underwent multiple sessions of physiotherapy along with vitamin B<sub>12</sub> supplementation but pain further increased and spread to the abdomen and lumbar region. Biopsy was taken by the neurosurgeon; it was suggestive of AV malformation.

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She was started on pregabalin 75 mg and was relieved of symptoms. She again developed pain after 3 months for which she was further evaluated by the neurologist. As pain was not relieved by any medication, she was referred to the pain clinic for pain management. On systemic examination, multiple trigger points were noted over neck, shoulder, forearm, lower back, and anterior abdominal wall. Hence, she was suspected to have fibromyalgia. The patient was symptomatic even after taking medication and continued to have multiple trigger points for which she underwent trigger point injections (bupivacaine 0.125% plus triamcilon depot steroid mixture) and matrix therapy (physiotherapy) alternative day for seven sittings. Over a time, pain got subsided and she was shifted on hydrotherapy and stretching exercises. Later on we realized that the relapses were very common with shifting of the trigger point. Neuropathic medication dosage was increased, pregabalin 300 mg/day along with nortriptyline 50 mg. Pain was reduced by 50% (VAS score 6/10, initially it was 9/10). Considering the pain score, patient was shifted on milnacipran 25 mg initially and increased to 50 mg along with pregabalin and nortriptyline. The patient had moderate pain relief (pain score 4-5/10) with the complaints of sedation. Due to side effects of neuropathic drugs and persistent score of 4 on the pain scale, we decided to try ketamine infusion.

Ketamine (preservative-free) was started initially with the dose of 25 mg with 4 mL of 2% lignocaine hydrochloride in 50 mL normal saline at the rate of 25 mg/hour. The dose of ketamine gradually increased with the maximum dose of 125 mg over 5 days. She responded well to the ketamine therapy. After the therapy, there

were only three trigger points left (two points in trapezius and one at inner aspect of the left palm at the site of the nodule). We planned pulsed radiofrequency (RF) for these trigger points. Pulsed RF was done for 120 seconds at 42°C two cycles were given at each trigger point. The patient had good relief with this therapy.

## DISCUSSION

Scientists estimate that fibromyalgia affects 4% of the population. For unknown reasons, between 80% and 90% of those diagnosed with fibromyalgia are women; however, men and children can also be affected. Most people are diagnosed during middle age, although the symptoms often become present earlier in life. Frequency of FM increases along with age (8% of women above 70 years old). Fibromyalgia syndrome is a clinical syndrome that encompasses patients at the extremes of chronic musculoskeletal pain in the general population.<sup>7</sup>

A review of 10 studies from different Western countries reported a prevalence of FM according to the ACR criteria in the general adult population of between 0.7% and 3.3%, with a prevalence in women between 1.0% and 4.9%, and in men between 0% and 1.6%.<sup>8</sup> It has been suggested that the male–female ratio reported in the literature may be biased, because most of the data come from tertiary care centers. In the United States, about 5 million people are thought to be affected.<sup>9</sup> Although the 1990 ACR diagnostic criteria for FM have shown 85% specificity for this illness, they do not mean that FM exists only in persons fulfilling these definitions. Similar to systemic lupus or rheumatoid arthritis criteria, FM criteria were narrowly defined for study purposes. For clinical use, FM should be considered in all patients who have widespread pain and tenderness but who do not have structural or inflammatory tissue abnormalities.

The most important point for the diagnosis of FM is widespread chronic musculoskeletal pain of unknown origin that has led to functional impairment or distress. A combination of treatments including medications, patient education, and physical therapy and counseling is usually recommended. Treatment of patients with chronic widespread pain needs to be individually tailored. The treatment of patients with fibromyalgia requires a combination of pharmacologic and nonpharmacologic modalities, including exercise and cognitive behavioral therapy. In 2007, Food and Drug Administration (FDA)-approved pregabalin was the first drug for the treatment of fibromyalgia.<sup>9</sup> Pregabalin is a medication developed to treat neuropathic pain in dose 450 mg/day. A meta-analysis of the trials with pregabalin and gabapentin also showed effects on reduction of pain, improved sleep, and quality of life.<sup>10</sup> In June 2008, a second drug, duloxetine, which was previously approved for treating depression, received FDA's approval for fibromyalgia treatment as well in a dose 30–60 mg/day.<sup>11</sup> In 2009, the FDA approved milnacipran for the treatment of fibromyalgia.<sup>12</sup>

Recently, new research showed ketamine infusion is beneficial for the treatment of fibromyalgia. Ketamine exerts its analgesic, antidepressant, and psychomimetic effects via myriad pathways. It is a noncompetitive antagonist of the N-methyl-D-aspartate (NMDA) receptor present in CNS. It also reduces activity of glutamate, the main excitatory hormone in the brain.

Ketamine is an N-methyl-D-aspartate receptor antagonist that has the ability to provide profound analgesia and amnesia while maintaining spontaneous respiration, which makes it an ideal medication for procedure-related pain and trauma. However, its unique dual properties as an anesthetic agent with powerful

antinociceptive effects and its ability to prevent or even reverse “windup” make it a useful tool in refractory chronic pain states characterized by central sensitization and neuroplasticity. Low-dose ketamine administration exerts “antihyperalgesic and antiallodynic” effects via NMDA receptor antagonism. The protean pharmacological properties of ketamine may also be due to its ability to act on a multitude of receptor systems, which includes antagonistic effects on nicotinic and muscarinic acetylcholine receptors and voltage-gated calcium channels.<sup>13</sup> Analgesia from ketamine usually ensues when plasma concentrations approach 100 ng/mL.<sup>13</sup> In fibromyalgia, the results have been more positive. Randomized-controlled studies have suggested that central NMDA receptors may play a primary role in fibromyalgia, as evidenced by a significant reduction in symptoms among a large proportion of patients in response to ketamine.<sup>14,15</sup> However, the 0.3 mg/kg dose administered in these studies may have undermined the NMDA selectivity of the infusion such that pain relief could have resulted from the dissociative effects. Since no etiologic tissue pathology has been reliably identified in fibromyalgia, many experts feel the condition is best classified as a form of central, rather than nociceptive, pain.

## CONCLUSION

We report a case of fibromyalgia that was successfully treated with pregabalin, nortriptyline, and milnacipran. Nonpharmacological treatment was continued for symptomatic relief. However, the newer treatment with ketamine infusion yielded drastic relief of symptoms and patient comfort.

## REFERENCES

1. Staud R. New evidence for central sensitization in patients with fibromyalgia. *Curr Rheumatol Rep* 2004;6(4):259. DOI: 10.1007/s11926-004-0031-2.
2. Neeck G. Neuroendocrine and hormonal perturbations and relations to the serotonergic system in fibromyalgia patients. *Scand Rheumatol Suppl* 2000;113:8–12. DOI: 10.1080/030097400750001743-1.
3. Buskila D. Developments in the scientific and clinical understanding of fibromyalgia. *Arthritis Res Ther* 2009;11(5):242. DOI: 10.1186/ar2720.
4. Yunus MB. Fibromyalgia and overlapping disorders: the unifying concept of central sensitivity syndromes. *Semin Arthritis Rheum* 2007;36(6):339–356. DOI: 10.1016/j.semarthrit.2006.12.009.
5. Smith HS, Harris R, Clauw D. Fibromyalgia: an afferent processing disorder leading to a complex pain generalized syndrome. *Pain Physician* 2011;14(2):E217–E245.
6. Russel IJ, Larson AA. Neurophysiopathogenesis of fibromyalgia syndrome: A unified hypothesis. *Rheum Dis Clin North Am* 2009;35(2):421–435. DOI: 10.1016/j.rdc.2009.06.005.
7. Arnold LM, Hudson JI, Hess EV, et al. Family study of fibromyalgia. *Arthritis Rheum* 2004;50(3):944–952. DOI: 10.1002/art.20042.
8. Gran JT. The epidemiology of chronic generalized musculoskeletal pain. *Best Pract Res Clin Rheumatol* 2003;17(4):547–561. DOI: 10.1016/S1521-6942(03)00042-1.
9. Lawrence RC, Felson DT, Helmick CG, et al. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Part II. *Arthritis Rheum* 2008;58(1):28–35. DOI: 10.1002/art.23176.
10. Häuser W, Bernardy K, Üçeyler N, et al. Treatment of fibromyalgia syndrome with gabapentin and pregabalin: a meta-analysis of randomized controlled trials. *Pain* 2009;145(1–2):69–81. DOI: 10.1016/j.pain.2009.05.014.
11. Russell IJ, Perkins AT, Michalek JE. Oxybate SXB-26 fibromyalgia syndrome study group. Sodium oxybate relieves pain and

- improves function in fibromyalgia syndrome: a randomized, double-blind, placebo-controlled, multicenter clinical trial. *Arthritis Rheum* 2009;60(1):299–309. DOI: 10.1002/art.24142.
12. Chong YY, Ng BY. Clinical aspects and management of fibromyalgia syndrome. *Ann Acad Med Singapore* 2009;38(11):967.
  13. Sinner B, Graf BM. Ketamine. *Handb Exp Pharmacol* 2008;182:313–333.
  14. Sörensen J, Bengtsson A, Ahlner J, et al. Fibromyalgia: are there different mechanisms in the processing of pain? a double blind crossover comparison of analgesic drugs. *J Rheumatol* 1997;24(8):1615–1621.
  15. Graven-Nielsen T, Aspegren KS, Henriksson KG, et al. Ketamine reduces muscle pain, temporal summation, and referred pain in fibromyalgia patients. *Pain* 2000;85(3):483–491. DOI: 10.1016/S0304-3959(99)00308-5.