CASE REPORT

Rheumatoid Arthritis Masquerading as Fibromyalgia

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ABSTRACT

Symptoms of inflammatory arthritis such as rheumatoid arthritis (RA) can overlap with fibromyalgia syndrome (FMS). Moreover, FMS and RA can coexist. Hence, the diagnosis of low intensity, antibody-negative RA may present a challenge. Here, we present the case of a middle-aged woman thought to have FMS, osteoarthritis and osteoporosis for 4 years prior to being diagnosed as seronegative RA on musculoskeletal ultrasound (MSKUS). Targeted therapy with etanercept led to a complete clinical response and normalization of previously elevated C-reactive protein. We conclude that MSKUS is a sensitive tool for distinguishing low-intensity inflammatory arthritis from FMS with important clinical consequences.

Key Words: *Musculoskeletal ultrasound. Rheumatoid arthritis. Fibromyalgia.*

INTRODUCTION

Early or chronic low grade inflammatory arthritis can present with chronic pain associated with fatigue and psychological consequences due to inability to diagnose it. In such cases, inflammatory arthritis such as rheumatoid arthritis (RA), can be misdiagnosed as fibromyalgia syndrome (FMS), which presents as widespread pain, though non-inflammatory in nature.[1] Such patients not only suffer the complications of inflammatory arthritis but also psychological dysfunction due to misdiagnosis and social consequences of unexplained pain. Musculoskeletal ultrasound (MSKUS) is a powerful tool to detect inflammation even when it is of low-intensity and not easily clinically detectable. Here, we present the case of a middle-aged woman who suffered from seronegative rheumatoid arthritis (RA), but was clinically incorrectly diagnosed as FMS for 4 years. Her disease demonstrated therapeutic response to targeted therapy with etanercept. The prevalence of FMS has declined due to better diagnosis,[2,3] and this case makes the argument for more frequent use of MSKUS, especially in cases clinically diagnosed as FMS, to investigate the possibility of inflammatory arthritis.

CASE REPORT

A 57-year woman presented to our clinic with a 4-year history of bilateral knee pain and swelling. On further questioning, she revealed having morning stiffness lasting for over 30 minutes and arthralgias in multiple joints. She had been diagnosed with fibromyalgia, early knee osteoarthritis, and osteoporosis (bone mineral density lumbosacral spine (BMD L/S) 0.745 g/cm^2, T=-2.7, Z=-1.8) at a reputable foreign hospital 3 years prior to presentation at our clinic. For osteoporosis, she had been treated with alendronate for 3 years (BMD L/S 1.045 g/cm^2, T=-1.1, Z=-0.2). Review of systems was significant for frequent headaches, fatigue throughout the day, and disturbed sleep. She had a past medical history of hypertension controlled on valsartan. There were no known allergies or family history of arthritis or other autoimmune disease.

Clinical examination was significant for bilateral knee crepitus and Baker's cysts, tenderness in the upper back, lateral epicondyles, costochondral junctions, over both greater trochanters and over the medial aspect of both knees. Rest of the examination was within normal limits. Investigations showed normal complete blood count (CBC), creatinine 0.4 mg/dl, uric acid 6.1 mg/dl, elevated C-reactive protein (CRP) (Figure 1) and ESR 33 mm/1st hour. Autoimmune workup was negative for anti-nuclear antibody (ANA), rheumatoid factor (RF) and anti-cyclic citrullinated peptide (CCP) antibodies.

Musculoskeletal ultrasound (MSKUS) of hands and feet was performed using Toshiba Xario 100 machine with a 14MHz linear transducer. It showed symmetric, low-grade synovitis, tendonitis and enthesitis. A diagnosis of seronegative RA was made, based on MSKUS findings in contrast to her earlier diagnosis of osteoarthritis and fibromyalgia. She was prescribed leflunomide 20mg and tapering doses of prednisolone. She dramatically improved and her inflammatory markers including CRP declined (Figure 1). However, she developed alopecia from leflunomide and the dose was reduced. Later, the regimen was changed to low dose methotrexate (7.5 mg) and mycophenolate 1 g, which resulted in remission and no further alopecia. However, 3 months later she was found to have elevated transaminases. At this time, she was abroad and was evaluated by an expert panel

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including a gastroenterologist and a rheumatologist. After a thorough evaluation, it was concluded that she had had liver toxicity from methotrexate and that she had fibromyalgia and not RA. All immunosuppressants were discontinued and patient was started on pregabalin. A month later, she developed worsening joint pains, and morning stiffness in the right hand lasting for > 30 minutes. She was at that time prescribed prednisolone 10 mg, which she did not take and returned to our clinic. Repeat comprehensive MSKUS of hands, elbows, knees, ankles, and feet was performed, according to EULAR protocols. Longitudinal and transverse views were taken for all structures. MSKUS showed widespread low grade synovitis, tendonitis, enthesitis (Figure 2). CRP was 1.36 mg/dl. She was given etanercept 50 mg once, and CRP dropped to 0.64 mg/dl after a week. Her pain and fatigue disappeared and her sleep became normal. She is currently well controlled on etanercept 50 mg once a week.

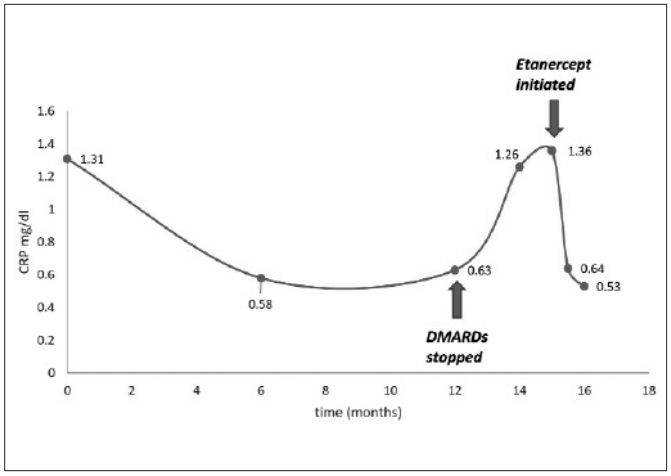

Figure 1: Response of C-reactive protein (CRP) to RA treatment. Normal values for CRP are <0.5mg/dl. All CRP levels reported here were consistently performed at the same laboratory.

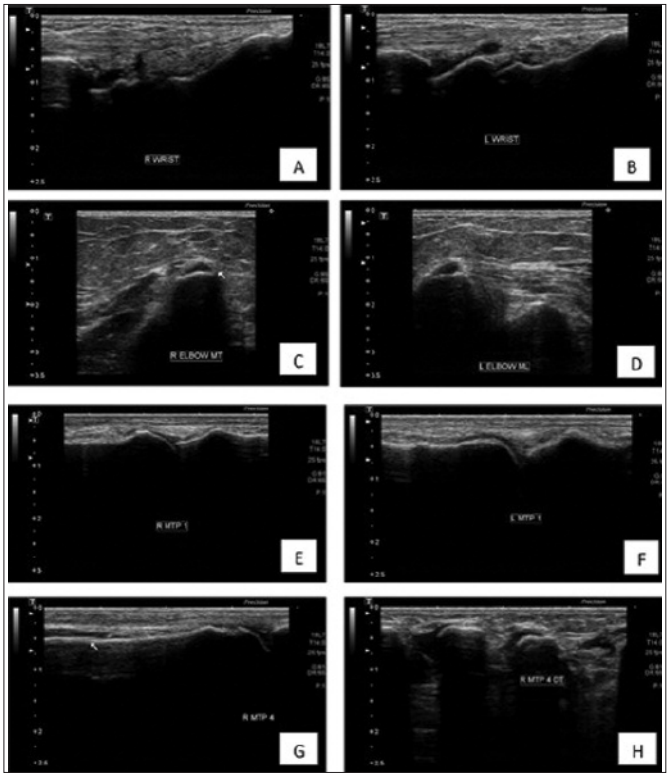

Figure 2: A and **B** show grade 2 symmetric synovitis of bilateral wrists. **C** (right elbow transverse view) and **D** (left elbow longitudinal view) show bilateral medial elbow enthesitis. **E** and **F** show bilateral first metatarsophalangeal (MTP) joint grade 1 synovitis. **G** and **H** show right 4th MTP dorsiflexor tendonitis (G dorsal longitudinal and H dorsal transverse views).

DISCUSSION

Musculoskeletal pain is a common symptom that extensively overlaps between inflammatory arthritis and FMS, which is characterized by widespread pain associated with fatigue, poor sleep and cognitive dysfunction.[1] Chronic pain due to inflammatory arthritis may also lead to insomnia with consequent psychological effects. This makes the diagnosis of inflammatory arthritis challenging, misleading treatment decision in favor of FMS. The prevalence of FMS in the general population is 1.3%.[2] It was previously thought to be higher, likely due to over-diagnosis.[3,4] FMS is not a diagnosis of exclusion; and can coexist with other rheumatic diseases.[5] In RA, the prevalence of FMS has been reported to be as high as 10 - 20%.[5]

It has been shown that MSKUS can more accurately diagnose inflammatory arthritis than clinical evaluation.[6,7] Here, we present the case of a woman with sero-negative RA with widespread low grade synovitis, tendonitis and enthesitis, misdiagnosed clinically as FMS twice at reputable international hospitals (without employing MSKUS). She had mildly elevated CRP levels, which responded to targeted RA therapy with etanercept. Though osteoporosis and osteoarthritis could independently exist in her case, it is also possible that the underlying RA, not previously diagnosed, was a contributing factor. She had excellent clinical response to RA therapy including DMARDs and etanercept indicating that at least a large component of her FMS-like symptoms were due to inflammatory arthritis.

In summary, this case demonstrates that inflammatory arthritis, such as RA, may present camouflaged as FMS. Elevated inflammatory markers, such as CRP, may be helpful in diagnosis. MSKUS, as shown here, is a sensitive tool to diagnose inflammatory arthritis and can help differentiate it from FMS, even when inflammatory markers are within normal limits. This will lead to a reduction in the cost and disease burden of FMS with consequent improvement in accuracy and response of treatment of rheumatic diseases.

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