



Case Report

New Suspects for Polymyalgia Rheumatica! Unconscious Diet and Stress: A Case Report and Review of the Literature

 **Emine Cagla Uzman**¹,  **Elmas Yilmaz**¹,  **Fatma Colak**¹,  **Sevde Yazici**¹,  **Fazil Kulakli**²

¹Department of Physical Medicine and Rehabilitation, Giresun University Faculty of Medicine, Giresun, Turkey

²Department of Physical Medicine and Rehabilitation, Giresun University Prof. Dr. Ilhan Ozdemir Training and Research Hospital Giresun, Turkey

Abstract

Polymyalgia rheumatica (PMR) is a systemic autoimmune disease associated with widespread pain in the elderly. The etiology of PMR has not been clearly determined. There are many different causes of PMR and stress and/or diet might be one of them. Unconscious diet can reveal psychological and physical stress in the body. In addition, dieting and stress may affect the inflammatory process in several ways. Here we presented a patient on an unconscious diet diagnosed with PMR. As a result of the case, we thought that unconscious diet and related/non-related stress may be risk factors for autoimmune diseases such as PMR.

Keywords: Diet, polymyalgia rheumatica, stress

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Polymyalgia rheumatica (PMR) is a common inflammatory disease affecting the musculoskeletal system and especially occurs in over the age of 50. PMR is more common in females and the incidence is increasing with age.^[1] PMR is characterized by pain and stiffness on shoulder and hip girdles and elevated laboratory markers of inflammation but there is no gold standard test for the diagnosis of PMR.^[2,3]

The etiology of the disease has not been clearly determined.^[4] Previous studies indicated that stress was a risk factor for autoimmune and rheumatic diseases such as rheumatoid arthritis, systemic lupus erythematosus, juvenile chronic arthritis and fibromyalgia syndrome.^[5,6] Although it has been shown in some studies that unhealthy and non-scientific diet is a source of stress for the body^[7] and stress is a risk factor for rheumatic and autoimmune diseases,^[5,6] there is no study showing that the diet or stress are related

with PMR. In this case presentation, we aim to emphasize that unhealthy and non-scientific dieting as a source of stress can trigger PMR.

Case Report

A 63-year-old male patient presented to our outpatient clinic with complaints of both shoulder and hip pain and stiffness. Six months ago, the patient stated that a moderate pain without stiffness started on his right hip and getting worse with movement. After two months, he decided to lose weight for the reduction of pain and began to slimming diet without professional support. He completely abandoned the use of salt and sugar, reduced carbohydrate and protein-containing foods. The pain decreased after weight loss (27 kg within two months) and he continued to uncontrolled diet. Two months after the initiation of diet, a severe pain and stiffness started on his both shoulders and

Address for correspondence: Fazil Kulakli, MD. Giresun Universitesi Prof. Dr. Ilhan Ozdemir Egitim ve Arastirma Hastanesi, Fiziksel Tip ve Rehabilitasyon Anabilim Dalı, Giresun, Turkey

Phone: +90 454 310 20 00 **E-mail:** drfzl46@gmail.com

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hips, increased day by day and peaked in last one week. His pain and stiffness were very intense in the mornings and the Visual Analog Scale (VAS) pain score was 10. The morning stiffness and pain decreased about 30 minutes but continued throughout the day.

Hypertension, diabetes mellitus and coronary artery disease were present in the patient's medical history and there was also asymptomatic hyperuricemia but no gout story. He has 120 pack/year smoking and intermittent alcohol using story. No pathology was found in rheumatologic examination. The family history of patient was normal. There were no skin lesions, arthritis, oral ulcers, nail changes, raynaud's phenomenon, uveitis or scleritis, joint deformities or any pathological findings on the examination of the musculoskeletal system. Upper and lower extremity movements were normal but so painful. No neurological deficits were detected. Pulses of temporal arteries were normal, there were no tenderness or jaw claudication on both temporal arteries.

Erythrocyte sedimentation rate (ESR) (92 mm/hr) and C-reactive protein (CRP) (10 mg/L) values were elevated in the laboratory tests. The complete blood count and other routine biochemical values were normal except uric acid (6.8 mg/dl). The radiographs of both hip and shoulder joints were normal.

As a result of all evaluations, the patient was diagnosed with PMR and methylprednisolone 16 mg/day was started. A dramatic clinical response was obtained in a short time. A significant decrease was observed in the laboratory parameters by the first month (CRP: 0.1 mg/L, ESR: 12 mm/hr) and the VAS pain score was 3. The patient's monitoring still continues in our clinic without any complaint.

Discussion

PMR is a common inflammatory disease which almost exclusively occurs in those ages >50, which is more prevalent in women than in men and is predominantly found in the Caucasian community.^[1,8] PMR is associated with systemic features such as weight loss, nausea and fever, as well as sudden onset bilateral pain in the shoulder and hip girdles.^[8] Clinicians should exclude other diseases because there is no specific test to diagnose PMR. Clinicians decide on treatment after observing elevated inflammatory markers, patient complaints and excluding other diseases. The dramatic response to steroid treatment is also quite valuable for diagnosis of PMR.^[3]

Chronic diseases, genetic tendencies, cytokines such as TNF alpha, interleukin 6, infections, stress, foods and trauma may be responsible for PMR. But the etiology has not been fully elucidated.^[2,4,8] Although the exact cause of the dis-

ease is unknown, a number of inflammatory markers and genes such as HLA are thought to play a role. Studies have shown that dendritic cells and macrophages, which may lead to inflammation when the synovium and bursae of shoulder or hip girdles (where the pain is) were detected. The synovitis of PMR is characterized by vascular proliferation and leukocyte infiltration, especially macrophages and T lymphocytes.^[4]

Psychological and physical stress play a role in the development of autoimmune diseases^[6,9] and it is known that PMR is an autoimmune disease.^[4] However, there was no study showing the effect of stress on PMR directly. As noted in previous studies, in case of stress the hypothalamic-pituitary-adrenal axis creates an inflammatory response by using the sympathetic nervous system and the immune system.^[5,6] Following the inflammatory response atopic autoimmune diseases occur or host's defense decreases.^[6] According to endocrine system study, when hypothalamus stimulates the adrenal glands' cortex to produce cortisol and medulla to produce epinephrine, this situation energizes the body to escape dangerous but in case of chronic stress, the release of hormones are disrupted and the body is vulnerable to damage.^[7] In a study by Boscarino, the prevalence of autoimmune diseases were increased in 2490 Vietnam veterans who have posttraumatic stress disorder. When these patients were examined, elevated circulating T-lymphocytes and low cortisol levels were detected.^[10]

Although there was one study showing the effect of non-scientific unhealthy diet on stress,^[7] there were no studies showing the effect of non-scientific unhealthy diet on autoimmune diseases or PMR directly. But there are a few publications that we can suspect in this topic. In a cohort study examining the views of patients with PMR, 53 of 379 people believed that PMR was caused by personal stress, and three of them believed that it was caused by poor diet.^[8]

As a result of one study investigating relationship between body mass index (BMI) and PMR, it was stated that low BMI is an independent risk factor for PMR. In this study, the effect of high BMI on inflammatory pathways was noted. PMR is also an inflammatory disease and is influenced by the BMI. In this article it is clearly stated that adipose tissue is able to protect body against PMR because it synthesizes estrogen and cytokines, chemokines, acute phase reactants and some hormones which are secreted from adiponectin can affect inflammatory pathways.^[11] So anti-inflammatory pathways may be affected after loss weight by diet and in this way the PMR can be triggered.

In a study investigating whether there is a relationship between socioeconomic status and PMR, as poverty increased, inflammatory diseases such as osteoarthritis also

increased. At the same time, there was an increase in c reactive protein and interleukin in patients with an increase in poverty.^[1] These inflammatory markers are known to increase in PMR. Poor nutrition and weight loss due to poverty may have triggered PMR.

Non-scientific unhealthy diet may be a risk factor for stress^[7] and stress related autoimmune and rheumatic diseases.^[5,6] So non-scientific unhealthy dieting can trigger PMR as an autoimmune disease. Dieting can trigger PMR in three ways, creating physical, psychological stress and without consuming anti-inflammatory nutrients. The effect of stress was mentioned earlier. If focusing on nutrients, some foods have anti-inflammatory influences, like omega-3, omega-6, vegetables, fruits, whole grains and legumes.^[7] Therefore, not eating these foods in a non-scientific unhealthy diet can lead to the formation of an inflammatory response. Like the patient in our study, if the person does not pay attention to nutrition, the inflammatory response will be strengthened and the disease can be aggravate.^[7]

Conclusion

There is no comprehensive study showing the relationship among PMR, diet and stress. We think that unconscious diet leads to autoimmune diseases such as PMR either by itself or as a cause of stress. In the direction of our patient's clinical signs and literature, we decided to write this article and started to investigate this relationship in other patients with PMR. As a result of the case, it is emphasized that unconscious diet and diet-related stress triggers PMR, further studies are needed to evaluate this relationship.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report.

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