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Meat-Induced Joint Attacks, or Meat Attacks the Joint: Rheumatism Versus Allergy

Dear Editor:

A 32-year-old woman was seen for a possible diagnosis of food allergy. She had a diagnosis of rheumatoid arthritis (RA) and had been monitored for the last 8 years. She was taking methotrexate, prednisolone, and a nonsteroidal anti-inflammatory drug; her medical history was otherwise noncontributory. On detailed questioning, she reported having several arthritis episodes (left knee as well as left temporomandibular and left ankle joints) when she ate a diet rich in animal foods (eg, eggs, milk, and meat). The episodes started 6 to 10 hours after ingestion of animal protein (most severe with meat) and lasted 2 to 3 days. She was free of arthritic episodes when she stopped ingesting animal products. She did not notice any symptoms when she followed a vegetarian diet composed of plant proteins (eg, peas, lentils, beans). Gouty arthritis was ruled out based on clinical signs and several normal uric acid measurements. When the patient underwent skin testing and oral diet challenge, she reported that she had ingested meat the night before the test in order to demonstrate her complaint of arthritis. During physical examination on the day of testing, swelling, erythema, and tenderness were detected on the left knee joint. Allergy skin testing was negative for all types of aforementioned food. Accordingly, it was recommended that she ingest a modified diet containing fewer animal products.

Given that diet is an unavoidable universal exposure for people, dietary manipulation may produce a large impact on the population's health. Recent data suggest some possible links between diet and rheumatic disorders. An ecologic study compared data from 8 countries on the prevalence of RA in female participants and reported that fat from meat and offal was strongly associated with the prevalence of RA.¹ Pattison et al,² in a prospective, nested, case-control study with 88 incident cases of inflammatory polyarthritis, also showed a statistically significant positive association between red meat intake and the risk of inflammatory polyarthritis. However, in a large prospective cohort of 82,063 women, Benito-Garcia et al³ observed no significant association between protein or iron intakes and risk for RA, including specific analyses of animal and vegetable protein, heme iron, and iron from foods and supplements. Furthermore, no associations were observed between the primary food sources of these nutrients, namely red meat, poultry, and fish.

Red meat is speculated to have proinflammatory properties by providing a dietary fat source that may cause inflammation or free radical production. However, because the lipid profiles of meat and dairy fatty acids are similar and dairy fat is not found to be associated with RA symptoms, the fatty acids may not play as much of a role as has generally been thought.¹ Nitrite is another possible agent that could lead to increased inflammation. The iron in meat may also contribute by acting as a catalyst to increase the production of free radicals. Other components in meat may be involved as well.

Allergen-specific, cutaneous lymphocyte antigen-positive T cells have been shown to play a role in delayed eczematous skin reactions in atopic dermatitis.⁴ We believe that a similar type of organ-specific type IV immunologic reaction might have taken place in our patient's joints. It has been mentioned that food-related problems of RA patients might reflect an adverse additive effect of multiple hypersensitivity reactions mediated by immune complexes promoting autoimmune reactions in the joints.⁵ Although established large cohorts have excellently addressed whether there exists a potential link between intake of meat and total protein and the risk of inflammatory polyarthritis and RA, more research is needed so that recommendations can be derived from robust conclusions. Given the improvement of symptoms in some RA patients who ingested a low-protein diet,^{6,7} the role of a meat-free diet in the management of RA remains to be further studied.

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References

1. Grant WB. The role of meat in the expression of rheumatoid arthritis. *Br J Nutr*. 2000;84:589-595.

2. Pattison DJ, Symmons DP, Lunt M, et al. Dietary risk factors for the development of inflammatory polyarthritis: evidence for a role of high level of red meat consumption. *Arthritis Rheum.* 2004;50:3804-3812.
3. Benito-Garcia E, Feskanich D, Hu FB, Mandl LA, Karlson EW. Protein, iron, and meat consumption and risk for rheumatoid arthritis: a prospective cohort study. *Arthritis Res Ther.* 2007;9:R16.
4. Akdis CA, Akdis M, Bieber T, et al; European Academy of Allergology; Clinical Immunology/American Academy of Allergy, Asthma and Immunology/PRACTALL Consensus Group. Diagnosis and treatment of atopic dermatitis in children and adults: European Academy of Allergology and Clinical Immunology/American Academy of Allergy, Asthma and Immunology/PRACTALL Consensus Report. *Allergy.* 2006;61:969-987.
5. Hvatum M, Kanerud L, Hällgren R, Brandtzaeg P. The gut-joint axis: cross reactive food antibodies in rheumatoid arthritis. *Gut.* 2006;55:1240-1247.
6. Kjeldsen-Kragh J, Haugen M, Borchgrevink CF, et al. Controlled trial of fasting and one-year vegetarian diet in rheumatoid arthritis. *Lancet.* 1991;338:899-902.
7. Nenonen MT, Helve TA, Rauma AL, Hänninen OO. Uncooked, lactobacilli-rich, vegan food and rheumatoid arthritis. *Br J Rheumatol.* 1998;37:274-281.