

Another Reason to Hate Ticks

By Tom Welch

READERS COULD BE forgiven for wondering “What more could he possibly have to say about ticks?” Indeed, the wilderness medicine literature is replete with articles on the subject. For most tick-borne diseases, the paradigm is the same: Tick bites mammal and acquires an organism. Tick then bites human and passes on organism. Organism causes disease in human. The disease can be

treated, but preventing tick bites is the best strategy. For everything from Lyme disease to Colorado tick fever, these four sentences pretty much summarize the situation.

Now, for something completely different: alpha gal syndrome (AGS).

Although AGS as a complication of tick bites has been reported in a number of esoteric medical journals over the past few years, it has remained a medical curiosity. A recent case report in the widely circulated *New England Journal of Medicine* (N Engl J Med 2021;384:462-7) may give the condition greater visibility.

Unlike most tick-related disorders, which are infections, AGS is an allergic reaction to a molecule, alpha gal for short, which is present in all mammals except primates (like us). This includes animals in our diet such as cows and pigs. Ticks may ingest tiny quantities of alpha gal when feasting on deer, then may transfer some of the material to their next human host. Some humans, upon being exposed to alpha gal from a tick bite, develop antibodies to it in large enough quantities to produce an allergic reaction upon consumption of red meat. Interestingly, the reaction seems to be specific to the meat; patients with AGS after consumption of beef generally can tolerate milk.

We have no idea why only a subset of folks suffering tick bites develop these antibodies and AGS. Although in theory any tick can transmit alpha gal, thus far the problem seems limit-

ed mostly to the lone star tick, a species seen in New York.

The symptoms of AGS are quite variable. Some patients develop an itchy rash, urticaria (“hives”), following meat ingestion. Unlike other food allergies, this may be delayed in onset. Patients have described awakening from sleep with hives after a red meat dinner, for example. Other reactions may be more specific to the intestinal tract, with abdominal pain or diarrhea, similar to other forms of food intolerance.

Although unusual, more dramatic symptoms can occur with this disorder. The rare patient can experience swelling of the lips (angioedema), difficulty breathing, and even the severe generalized allergic reaction called anaphylaxis. Without immediate treatment, such individuals can die.

Like the rest of the tick-related disorders, AGS is prevented by the whole suite of tick avoidance measures to which users of the outdoors are becoming accustomed. Once it has developed, prevention involves avoidance of meat. Although as a vegetarian for decades I would not find this difficult, my carnivorous friends tell me it can be a burden! Mild reactions to alpha gal respond to over-the-counter antihistamine medications such as Benadryl®. More severe reactions may require the administration of steroids. Like anaphylaxis from any allergen, life-threatening reactions require the immediate administration of epi-

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nephrine, such as from an EpiPen®.

Since the symptoms of AGS are somewhat vague, and since they may not always follow meat ingestion immediately, the condition is often difficult to diagnose. Many patients report years passed before a definite diagnosis was made. Users of the outdoors who have had tick exposures (the frequency of the condition increases with the number of tick bites) and who experience unexplained allergic symptoms such as hives should mention their tick exposures to their primary physician or allergist. There are both blood tests and skin tests which can be used to confirm the diagnosis of AGS. ▲

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