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“Alpha-Gal Syndrome”

Alpha-Gal Syndrome (AGS), sometimes called red meat allergy or mammalian meat allergy, is a food allergy linked to tick bites. The condition is caused by a reaction to a sugar molecule called alpha-gal (galactose-alpha-1,3-galactose) that is found in the meat and products of mammals such as beef, pork, and lamb. Humans do not naturally produce this molecule, which is why the body can sometimes react to it. In the United States, AGS is most commonly associated with bites from the Lone Star tick. When this tick bites a person, it can introduce alpha-gal into the body. In some individuals, this exposure triggers the immune system to produce antibodies to the molecule. Later, when the person consumes foods containing alpha-gal, the immune system may react and cause allergy symptoms. AGS has also been reported in other parts of the world, where different tick species can trigger the same response.

One unusual feature of Alpha-Gal Syndrome is that symptoms do not appear immediately after eating the allergen. Unlike most food allergies, which can cause reactions within minutes, AGS reactions often occur two to eight hours after eating mammalian meat or products. This delay occurs because the food must first be digested and absorbed into the bloodstream before it can trigger an immune response. Symptoms can vary from person to person. Common reactions include hives, skin rashes, swelling of the lips or throat, stomach pain, nausea, vomiting, or diarrhea. Some people may also experience dizziness or wheezing. In severe cases, a person can develop anaphylaxis, a life-threatening allergic reaction that requires immediate medical attention.

Diagnosing AGS can sometimes be challenging because of the delayed onset of symptoms and the fact that it has only recently been widely recognized. Healthcare providers often rely on a patient’s medical history, including possible tick exposure and delayed allergic reactions after eating red meat. Blood tests that detect antibodies to alpha-gal can help confirm the diagnosis.

The primary way to manage the condition is by avoiding foods and products that contain alpha-gal. This typically includes mammalian meats such as beef, pork, and lamb, and sometimes other products like dairy or gelatin, depending on an individual’s sensitivity. Because ingredients derived from mammals may appear in some medications or personal care products, people with AGS are encouraged to read labels carefully and discuss concerns with healthcare providers.

People living in rural areas or spending significant time outdoors, such as farmers, ranchers, hunters, hikers, and campers, may be at higher risk of tick exposure. Preventing tick bites is the best way to reduce the risk of developing AGS. Recommended precautions include using insect repellent, wearing long sleeves and pants in grassy or wooded areas, checking skin and clothing for ticks after being outdoors, and promptly removing any ticks that are found. For individuals diagnosed with AGS, working with healthcare professionals such as allergists or registered dietitians can help ensure dietary restrictions are managed safely and that essential nutrients remain part of the diet. With proper awareness and prevention, many people can successfully manage the condition and reduce the risk of allergic reactions.

Information comes from Kansas State University Publications.