

What Is Alpha-Gal Syndrome?

Alpha-gal syndrome is a type of food allergy to mammalian (red) meat products.

Alpha-gal syndrome is associated with tick bites, most commonly from the Lone Star tick in the US, but also from different types of ticks in other areas of the world. During a bite, a tick injects a type of sugar molecule (galactose-alpha-1,3-galactose), also called *alpha-gal*, which leads to formation of an antibody. Because alpha-gal is present on cells of most mammals, including cows, pigs, lambs, and goats, when affected individuals eat these animal products, an allergic reaction may occur.

What Are the Symptoms of Alpha-Gal Syndrome?

Alpha-gal allergic reactions can range from mild to life-threatening (anaphylaxis) and typically occur about 2 to 6 hours after ingestion of mammalian meat or other mammalian products (such as cow's milk, cheese, or gelatin). Symptoms may include hives; swelling of the lips, tongue, throat, or eyelids; cough; difficulty breathing; wheezing; heartburn; nausea or vomiting; abdominal pain; diarrhea; or decreased blood pressure.

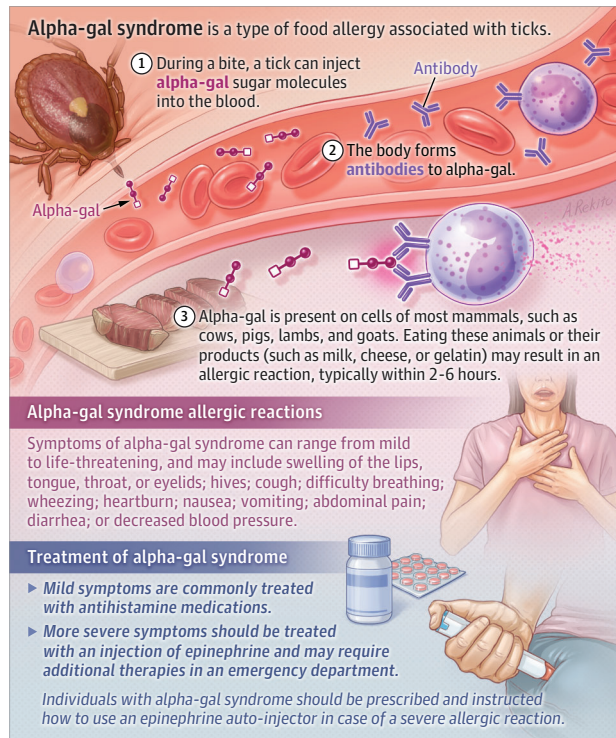
How Common Is Alpha-Gal Syndrome and Who Is Affected?

In the US, 110 000 cases of alpha-gal syndrome were reported from 2010 to 2022; however, many more cases were likely undiagnosed and/or unreported. Alpha-gal syndrome is most frequently diagnosed in the southern, central, and eastern US, but cases have been reported across the US and worldwide. Alpha-gal syndrome can affect both children and adults.

How Is Alpha-Gal Syndrome Diagnosed and Treated?

The diagnosis of alpha-gal syndrome is made when individuals have a delayed allergic reaction to red meat or other mammalian products and blood testing reveals an antibody against the alpha-gal sugar molecule. Mild alpha-gal allergic symptoms are commonly treated with an antihistamine medication. More severe reactions are treated with an intramuscular injection of epinephrine and may require additional therapies in the emergency department. Individuals diagnosed with alpha-gal syndrome are typically prescribed an epinephrine auto-injector to use if they develop a severe allergic reaction.

An individual with alpha-gal syndrome should completely stop eating mammalian meat (such as beef, pork, or lamb) and should be vigilant to avoid future tick bites. Some individuals may also need to stop ingesting mammalian-based products (such as cow's milk, cheese, or gelatin). Certain medications, such as a blood thinner (heparin), snake antivenom, and certain cancer medications (such as cetuximab), as well as mammal-based organ replacements (such as



heart valves) can cause allergic reactions in patients with alpha-gal syndrome and should be avoided.

How to Prevent Alpha-Gal Syndrome

Alpha-gal syndrome can be prevented by avoiding grassy, brushy, and wooded areas where ticks often live. Individuals who are outdoors in these areas should walk in the center of trails, use Environmental Protection Agency (EPA)-registered insect repellents, wear clothing that covers exposed skin, and apply insecticide (permethrin) to clothing and gear. After coming indoors, individuals should check their skin and clothing for ticks. If a tick is found on the body, it should be removed using fine-tipped tweezers to grasp the tick close to the skin and pull upward with steady, even pressure.

FOR MORE INFORMATION

Centers for Disease Control and Prevention
www.cdc.gov/ticks/alpha-gal/index.html

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