What is alpha-gal syndrome?

Alpha-gal syndrome (AGS) is an allergy that people can develop to certain types of meat and products made from mammals, usually after being bitten by a tick. The allergy involves a sugar called galactose-alpha-1,3-galactose (also known as alpha-gal) that is found in most mammals. Alpha-gal can be found in meat (pork, beef, rabbit, lamb, venison, etc.) and products made from mammals (including gelatin, cow's milk and milk products, and some medications). In some people, the allergy is limited only to beef or other meats that have a high fat content.

Who gets alpha-gal syndrome?

People who frequently spend time outdoors in tick habitats, particularly in thick grass and densely wooded areas, have an increased risk of tick bites, and therefore might have an increased risk of exposure. Not every person bitten by a lone star tick will develop AGS.

While people in all age groups can develop AGS, most cases have been reported in adults. Most reported cases of AGS in the United States occur in southern, eastern, and central states, which are areas where most lone star ticks are found.

How is alpha-gal syndrome spread?

AGS is associated with tick bites. In the United States, AGS is primarily associated with the bite of a lone star tick (*Amblyomma americanum*), but other kinds of ticks have not been ruled out as vectors. The alpha-gal carbohydrate is found in the tick's saliva, which is injected into a person's skin through a tick bite. This can later cause an immune response when a person eats or is otherwise exposed to meat or other products that contain the alpha-gal sugar.

What are the symptoms of alpha-gal syndrome?

The allergy can manifest as hives, angioedema (swelling of the lips, face, tongue, throat and other areas of the body), upset stomach, diarrhea, shortness of breath, headaches, and a drop in blood pressure. Some people can experience anaphylaxis, which is a severe and potentially life-threatening allergic reaction that can occur very quickly after exposure to the alpha-gal sugar.

How soon after exposure do symptoms of alpha-gal syndrome appear?

Unlike typical food allergies, AGS symptoms usually appear two to six hours after exposure and can arise suddenly following years of safe meat consumption. Because these symptoms can occur several hours after exposure, people may wake up with them in the middle of the night after an evening meal.

How is alpha-gal syndrome diagnosed?

A physician or allergist may request a blood test to detect if there are antibodies present for alpha-gal. It is important to note that people may test positive for these antibodies but not have clinical symptoms after eating red meat (this is called sensitization), and they would not be diagnosed with Alpha-gal Syndrome. A physician or allergist may request a food challenge, where red meat is consumed in a healthcare setting to confirm clinical symptoms.

How is acquired red meat allergy treated?

There is no cure for this allergy. AGS should be managed under the care of an allergist or other healthcare provider. Anyone experiencing a severe allergic reaction should seek immediate emergency medical care.

How can alpha-gal syndrome be prevented?

AGS can be prevented by avoiding exposure to lone star ticks. Lone star ticks are the most common tick species to bite people in Virginia. If a person has a history of AGS, then alpha-gal containing products should be avoided. In some people, the allergy will diminish over time, particularly if there are no further exposures to lone star tick bites.

How should a tick be removed?

You should remove attached ticks as soon as possible. Use fine-tipped tweezers to grab the tick as close to the head as possible (i.e., as near to your skin as possible) and exert a steady pull until the tick lets go. After removing the tick, thoroughly clean the bite area and your hands with soap and water, rubbing alcohol, or hand sanitizer. If you find a tick attached to you, there may be other ticks on your body. Do a careful tick check to look for other ticks and promptly remove them. The species of tick will provide important clues as to what types of diseases it might carry, so you might want to save the tick for identification by placing it in a jar or plastic bag. More information about tick removal and handling can be found at https://www.vdh.virginia.gov/ticks/tick-removal/.

How can I learn more about AGS?

- If you have concerns about AGS, contact your healthcare provider.
- Call your local health department. You can find your local health department at vdh.virginia.gov/health-department-locator/.
- You can find more information at the CDC's Alpha-gal Syndrome page at https://www.cdc.gov/alpha-gal-syndrome/about/index.html and as part of the Diseases and Data information on the VDH Ticks page at vdh.virginia.gov/ticks.