

Carnivores: Beware of ticks

Recent research uncovers tick bite as the cause for a delayed allergic reaction to red meat

If you are a steak lover, enjoy your meat while you can. An article by Susan Wolver, MD, and Diane Sun, MD, from Virginia Commonwealth University in the US, and colleagues, explains why if you have been bitten by a tick, you may develop an allergy to red meat. Their article¹ elucidates this connection and discusses the journey of the discovery. Their work appears online in the *Journal of General Internal Medicine*², published by Springer.

Delayed anaphylaxis - a severe, life-threatening allergic reaction - to meat is a new syndrome identified initially in the southeastern United States. Patients may wake up in the middle of the night, with hives or anaphylaxis usually three to six hours after having eaten red meat for dinner. Until recently, the link between red meat ingestion and anaphylaxis had remained elusive.

Wolver, Sun and colleagues' analysis of three patient case studies sheds light on this reaction. It is thought to be caused by antibodies to a carbohydrate (alpha-gal) that are produced in a patient's blood in response to a tick bite, specifically the Lone Star tick. This carbohydrate substance is also present in meat. When an individual who has been bitten by a tick eats the meat, his or her immune system activates the release of histamine* in response to the presence of alpha-gal, which can cause hives and anaphylaxis.

Significantly, meat-induced anaphylaxis is the first food-induced severe allergic reaction due to a carbohydrate rather than a protein. It is also the first time anaphylaxis has been noted to be delayed rather than occurring immediately after exposure.

The authors conclude: "Where ticks are endemic, for example in the southeastern United States, clinicians should be aware of this new syndrome when presented with a case of anaphylaxis. Current guidance is to counsel patients to avoid all mammalian meat - beef, pork, lamb and venison."

*a compound found in mammalian tissues that causes dilatation of capillaries, contraction of smooth muscle, and stimulation of gastric acid secretion, that is released during allergic reactions.

Reference

1. Wolver SE et al (2012). A peculiar case of anaphylaxis: no more steak? The journey to discovery of a newly recognized allergy to galactose- α -1,3-galactose found in mammalian meat. *Journal of General Internal Medicine*; DOI 10.1007/s11606-012-2144-z
2. The *Journal of General Internal Medicine* is the official journal of the Society of General Internal Medicine.

The full-text article is available to journalists on request.

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