

East End doctors treating tick-borne meat allergy

By Carrie Miller | 05/05/2013 9:00 AM |

The connection between the red meat allergy and the lone star tick (pictured) went undiscovered until 2009.

It was Super Bowl Sunday. The Seattle Seahawks were playing the Pittsburgh Steelers and Gary Knox was kicking back, enjoying the game with friends. There was a hearty spread, complete with mini sausages smothered in barbecue sauce, a southern guy's delight. It seemed luck was on his side; his beloved Steelers took the title. Mr. Knox, then 25, headed home, calling it a night about 9.

"My much-needed rest was interrupted around 3 a.m.," recalled Mr. Knox, of White Hall, Ark. "I awoke with severe stomach cramps, difficulty breathing, and a feeling that my face was on fire," he said. He had a rapid heart rate and was suffering from diarrhea. His body was covered in hives.

"I took Benadryl, then called 911," Mr. Knox said.

After Mr. Knox was packed into the back of an ambulance, a paramedic checked his blood pressure.

"The paramedic shook his head. He said, 'That can't be right,' " Mr. Knox recalled.

His blood pressure was 54 over 31, incredibly low. His heart rate was an alarming 203, incredibly high.

"I was going into anaphylactic shock," he said.

Mr. Knox has been dealing with allergic reactions since he was 13, when he developed an allergy to galactose-alpha-1, 3-galactose — more commonly known as alpha gal, a carbohydrate found in red meat. But what makes the allergy unique, experts say, is that people aren't born with it. They contract the condition from a tick — specifically the lone star tick.

"It's such a classic story," Dr. Erin McGintee, an allergist at ENT Allergy & Associates in Riverhead, said of Mr. Knox's ordeal. "People eat a meat dinner at 7 p.m., and they wake up at two in the morning with symptoms. They can get anything from hives and itchiness, to abdominal pain, to a full blown anaphylactic reaction. I've had patients lose consciousness from it."

Dr. McGintee currently has 62 patients on the East End dealing with the red meat allergy.

The tick bite triggers the production of antibodies that target the alpha gal carbohydrate, she said. When people who have developed the allergy eat red meat, she explained, the newly formed antibodies produce a histamine response to the alpha gal carbohydrate, causing inflammation and an allergic reaction. The carbohydrate is not found in fish or poultry, so those with the allergy can still enjoy some types of meat.

Experts are still researching why the entire phenomenon happens.

The lone star tick, once found largely in the southeastern U.S., is now one of the most common ticks on the East End, said Dan Gilrein, an entomologist with the Cornell Cooperative Extension.

"[The lone star tick] was first documented in Montauk in 1971, but it really hadn't become much of a problem until the 90s," Mr. Gilrein said. "It's now really the dominant species in many areas."

The lone star tick, named for a single white spot on the adult female's back, is out and about now and will be around through September, he said. And unlike the deer tick, which likes wooded shade, lone star ticks seem to like a range of habitats, from woods to bare fields to low grasses, and sunny and shady areas alike. Adult lone star ticks are brown or dark brown.

Females tend to be larger, with a sole white dot centered on their backs. Males tend to be a bit smaller, with several white dots across their backs, Mr. Gilrein said.

In late June, the eggs will be hatching, releasing lone star ticks in their larval stage.

"The larvae are about the size of a pin head. When you encounter them, it could be dozens to hundreds," Mr. Gilrein said.

People commonly confuse larval lone star tick bites with "chigger" bites, said Dr. John Byrne, an allergist with Allergy & Immunology in Riverhead, who also has several patients with the allergy. According to Mr. Gilrein, if you believe you have been bitten by chiggers in the past, it could have been lone star tick bites, because chiggers are not found on Long Island. (NOTE- SOME RESIDENTS DISAGREE AND SAY THEY HAVE BEEN BITTEN BY CHIGGERS ON LONG ISLAND)

"Larval ticks are really just tiny little things, and they are very itchy when they bite," he said.

The connection between the allergy and the lone star tick went undiscovered until 2009, when a group of University of Virginia researchers began looking into the allergy.

"The truth is that we were just searching for a geographical explanation that would overlay with where we were seeing our patients," said Dr. Scott Commins, allergy and clinical immunology physician at University of Virginia.

"We kept coming back to the distribution of Rocky Mountain spotted fever," which has been long known to be transmitted through lone star tick bites, he said. "It was in the same places as patients with this allergy. We started asking about tick bites and found this amazing correlation."

He and a team of researchers are trying to better understand the alpha gal allergy, which experts still know very little about. They are conducting an ongoing study, gathering information from several allergists across the region, including Dr. McGintee.

"It gives us a sense that this is a much bigger issue than we first thought," Dr. Commins said.

"We probably know of close to 2,000 total cases between these places," he said, adding that the patients in the study are likely just a fraction of cases nationwide. More recently researchers have been looking at children who have developed the allergy, he said.

"We don't know why certain people develop the allergy," Dr. McGintee said. Not everyone does, and there seems to be a genetic component, she said.

"It can go away, but it can also come back, which makes it different from other food allergies," she said. "It is a changing allergy."

Local experts say the allergy is very different from those they typically see.

"Almost all food allergies occur in response to protein," Dr. McGintee said. "The kooky thing about this is it's in response to a carbohydrate."

Dr. Byrne said some "interesting" discoveries may yet come, "when we find out what the tick's salivary substance is and how it induces this allergy," said Dr. Byrne.

Until the allergy is better understood, Mr. Gilrein advises using repellent and checking oneself after being outdoors.

"Don't let the ticks have the last say," he said. "Just be more careful about it, that's all."

The Cornell Cooperative has a diagnostics lab in Riverhead that will identify ticks for a small fee. The lab can be contacted at 727-4126. Ticks can be mailed to the lab or dropped off.

As for Mr. Knox's ordeal after the Super Bowl, although he survived after treatment in a trauma unit, the now-32-year-old says it was the worst reaction he has experienced. He now carries an emergency kit, complete with a self-injectable epinephrine pen in case of a future reaction. The sausage, which he was told was made of turkey, turned out to be a mixture of turkey and pork, which despite "the other white meat" slogan, contains alpha gal and is, in this regard, a red meat.

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