Introduction to Alpha-Gal Syndrome

Everyone. My name is Doctor Richard Horowitz. I am the co-host of the healing from Lyme Summit. It's my great pleasure this morning to introduce to you Doctor Scott Commins.

We're going to be discussing Alpha Gal syndrome prevention, risk symptoms and treatment options. Doctor Commins is an allergist, an immunologist, and he sees patients at the Unk Allergy and Immunology Clinic.

He is the William J. Yount Distinguished Professor of Medicine, associate chief for allergy and immunology, and medical director of the Unk Allergy and Immunology Clinic.

Doctor Commins is one of the world's leading experts on AlphaGo, and has helped many patients who have this condition actively investigating the cause of this allergy and his laboratory.

Scott, I'm so happy you could join us this morning. Thank you for taking the time to do this. Well, I'm grateful for the opportunity. Great. So do you want to tell people a little bit about yourself and how you got into this?

Because you were really one of the first people to be describing AlphaGo. How did this happen in your clinical career? Just like with me, things happened, you know, to do live.

How did this happen with you? With AlphaGo? Yeah, sure. So for me, it was joining Tom Platt's Mills's group at the University of Virginia during my allergy and immunology fellowship.

And his group had been actively investigating a series of reactions to a cancer medication called cetuximab. And the interesting thing about this is that there was a very distinct geographic pattern of the reactions to cetuximab.

They were occurring in a handful of Mid-Atlantic states in the US and really hadn't been described elsewhere. And so part of his process in the group was figuring out what it was about that medication that was causing the issue.

In the long story short, is that that cancer medicine has alpha gal on it. And so his group was thinking and reading about Alpha Gal when I joined. And so I started equally reading and and trying to understand more about this particular sugar.

And it's fascinating for a lot of different reasons. But in that process, as sort of science and the serendipity of life sometimes happens. There were a couple of patients that we had seen in the University of Virginia Allergy Clinic who were telling us a story about potentially being allergic to beef or pork or lamb, but the reactions were really unique in that they were delayed.

And so basically Doctor Platts Mill said look you should start to think about this. And so I started to do that.

How Alpha-Gal Was Discovered

And over the course of a couple of years, you know, we put together roughly two dozen patients and published that in 2009, I was the first author and he was the senior author.

And I think at that point we thought, gosh, this delayed the syndrome of delayed allergic reactions to red meat. That was due to alpha gal allergy. Really interesting.

But it didn't. I don't think either of us appreciated at that time that I would be talking to you ten, 15 years later when the CDC says that they think there are half a million cases now.

Right. So, yeah, so in Dippity usually happens in a lot of these fields of medicine. The way, the way we do what we do. And just for people listening, when you talk about delayed, we're talking like 4 to 6 hours after a meal, like the way it normally presented, like, you have dinner you're eating, right.

Some beef for pork, a lamb. And it's like hours later, 4 to 6 hours later in the E. R. with nausea, vomiting, rashes, respiratory symptoms. Why don't you describe a little bit like exactly how people present.

What is the syndrome. How do people get it? What are the symptoms they're looking for? Sure. There's there's almost two now that we two sort of presentations, if you will, that we think about.

And one is kind of the classic one that allergists typically are involved in. Meaning someone gets hives for itching or swelling. But in the alpha gal syndrome case, as you mentioned, you have a hotdog or a hamburger for dinner and literally nothing can happen for 3 hours or 4 hours, and then all of a sudden you start to itch and maybe your palms are turned red.

You'll get hives, you can have shortness of breath and gastrointestinal distress. So those patients, if you interviewed them two hours after eating a hamburger, they would feel completely fine.

The second way this often presents is in patients who just get gastrointestinal distress. So they have a hamburger for dinner and a couple hours later, they'll have incredibly severe abdominal cramping and pain, such that it has taken countless adults to an emergency department in the middle of the night because their pain is that severe.

So they think there's something else going on, whether it's a gallbladder or appendicitis, etc. but those patients cramping, vomiting, nausea, diarrhea, but they don't necessarily get hives or the things that would basically come to an allergist attention.

So those seem to be the two predominant presentations, but they are classically delayed by several hours. Right. So so this is almost a great imitator in your field, just like Lyme is described, the great imitator.

This one is a great imitator with the gastrointestinal symptoms where people have to be careful. And you know, when I when I teach doctors about even tickborne co-infections, regular relapsing fever or looking at a plasma Rocky Mountain GI symptoms with nausea, vomiting, diarrhea, people don't think of it.

But every one of these can be associated with it. So people really need to know. They've got to pay attention that if it's that severe with this, it's got to be on your differential diagnostic list.

Yeah, it's an excellent point. I really hadn't thought of it as a great imitator, but I think I will now. Yeah. Well, especially in our practice, you know, we don't see we do see some GI symptoms when people get tickborne co-infections.

But most of the time, like if they got an early care and a plasma rickettsia, it's, you know, lycopene, yellow white cell counts, low platelet counts, thrombocytopenia, elevated liver functions.

This classic stuff. Right. That will say, oh they need doxycycline right. This this might be the cause. How were you making the diagnosis early on. What blood test are you doing for these people to be able to assure them that they in fact, you have AlphaGo. Right.

So a great question. And we're really fortunate, I think, in this particular space where we have a blood test that checks for the allergic antibody, which is called IGI, and it checks for IGI that is directed against AlphaGo.

So you can order an alpha gal allergy blood test. It is a little tricky to pick up by skin testing, which is much more common certainly in the allergist office, but for the for the AlphaGo syndrome or AlphaGo allergy patients, it really seems like the blood test.

Perhaps, is a more direct route to finding that diagnosis. The sensitivity specificity of the test, I would say we're still

trying to work out. I think it's a great test.

I don't know that it's perfect. We certainly have people who test negative, but if we feed them beef or pork, they react 3 or 4 hours later. So as with any medical test, as you know, we probably miss some people on either end of the bell curve. But it's a good it is.

It is a really good test and it's typically done in the blood work.

Symptoms and Delayed Reactions

Great. So you and that can be done through LabCorp quest by reference. All the major laboratories will run it. Correct. But that's a great point that, you know, people normally think, oh, I think most people know the Lyme testing has certain false negatives, false positives.

But I don't know that people know that with Alpha gal. And that's an important issue, because if they were to present not with the hives and the respiratory, but with the GI, and you do this test and it's negative, you might tell the patient, hey, go home, you're going to be fine, but you're actually doing challenge.

If you really suspecting it. You're doing challenges sometimes in these patients and then and then retesting where they just challenge themselves. Right.

Just because they're eating these things, you're not necessarily doing that yourself. We correct. So there is some of both. I think some patients, if they get a negative test, they may assume, well, now I can eat what I thought I needed to avoid because I thought I was allergic to it.

And in those in those cases, some people then react as they sort of re challenge. You're correct. And we do some of this in the clinic ourselves. We call it a food challenge test in the allergy office in large part, it's really to help patients sort out if they have a negative test but they're still symptomatic, then we tend to do it under observation and I think the whole point is do you reintroduce a food because the test is negative.

And what's the safest way to do that? And for people who have had really severe reactions, we feel like the safest way to do that is in the clinic, so we can provide care if it's needed.

Right. So in other words, you're calling it the Big Mac test. You're having your nurse run out to go get him a Big Mac. This is going to be your medical procedure for the day.

We're going to go get your Big Mac. You're going to sit in the office for a couple of hours, so just the flies just leave up the fries. Don't do too much of the other stuff, and that will check you in a couple hours.

And that's not something I think I've ever done. But it's interesting to can. So we do a we we use Jimmy Dean sausage because the reactions are delayed.

So we tend to start this in the morning. And so we picked a breakfast food so to speak. And also the fat content it turns out is quite important. So you want to use a challenge food that has a fairly high percentage of fat to make sure that you're appropriately challenging the patient.

Right. Because it's too late. Because it's the late absorption. When you've got that fat, it's going to take a couple hours for the absorption. Exactly. Yeah.

So someone now has alpha gal. What do you do to prevent them from getting symptomatic. Like what medications nutraceuticals do you do? How do you protect them? You give them EpiPens.

You Graham h1, H2 blockers. What's what's your protocol once someone has developed this. So it's it's a really timely discussion because had we we talked about this say a month ago, I would have told you that there really is no approved FDA treatment for food allergies and really avoidance plus your emergency medicine, whether you

need an epinephrine auto injector or, as you mentioned, some long acting H1 H2 antihistamines.

But but now, just in the past few weeks, the FDA has approved Solaire, which is an anti IgG molecule for a food allergy indication. And so it begins now to shift our focus a bit to say can we move from truly just saying there's avoidance and nothing else to help protect you to avoidance.

Plus. So that's how the indication is written. It doesn't allow for you to consume what you're allergic to, but it gives you an added layer of protection, which a lot of patients with food allergy need.

Because we know that accidental ingestion, accidental exposures occur even amongst patients who are really diligently trying to practice an avoidance diet.

So it's great for us now to have another tool. And, in the toolbox for our patients with food allergy. Great. And so if I remember, I've not prescribed and I know of the drug it's a monoclonal antibody is used for like asthma.

Right. Some of these people with severe allergies and asthma, that's what it's mainly been used for correct. Correct. Yeah. So as far as the efficacy of Zoller, have they examined it yet or this is, are there any studies that we're looking at the efficacy right now?

Right. So they're the study that led to the the food allergy indication was one related to, peanut allergy mainly it was a multi allergen study. But but patients had to have a peanut allergy amongst others.

Testing, Diagnosis, and Food Challenges

And we we have been we have seen some some early efficacy in our allergy clinic for exactly what you mentioned, where patients may have underlying allergic asthma or chronic hives or nasal polyps.

They could have qualified for Zoll er. So we probably have about three dozen patients over the years who have been on Zola for other reasons, but also have a concurrent alpha gal allergy.

And we've seen that their rate of reactions is reduced. And so that is you know, we're working to publish that, but it's not out there currently. But the current data relates to other food allergies.

But there but there are data for that aspect. Got it. You know, the tricky part from my perspective is some of our patients that we see a fair amount have mast cell activation and they can get leaky gut.

We're now starting to see with Covid, we're starting to see microbiome changes, Candida overgrowth in the gut. What's interesting about long Covid is the 16 point message model that I've been developing for the last almost 40 years.

I did a scientific review. I it's in a paper that's in review right now as part of the case studies I'm publishing. Turns out all 16 points have now been associated Long-covid.

And and one of these is because so many of our patients with Marcel have Lyme or tick borne or they've got mold toxicity. Other things that are stimulating it.

It could actually be a little bit tricky because Marcel causes nausea and vomiting. It can cause sudden episodes of diarrhea. A lot of these patients will get severe allergic reactions, including allergic rhinitis, hives, asthma.

So in a differential diagnosis when you see these patients you're finding overlap with mast cell like trip taste Cro-Magnon and a prostaglandin D2 histamine two.

Do you look for those overlaps and do you find them in these patients? Yeah. It so you definitely, I think hit the nail on the head when it comes to this idea of overlapping, tick borne illness, tick related diagnoses and mast cell activation syndrome, or CAS, for short, perhaps.

And in fact, we are working with the Clinical Trials Network at Columbia University, funded by the the Cohen Foundation, to to have a clinical trial where we use because we see this so much the mast cell based therapies in our patients who have some longstanding post tick bite illness where clinically we've seen them improved dramatically when we can sort of quiet down the mast cells, I think I think your point is, is really well taken that this overlap is distinct from what I think of as an immunologist from true kind of master side ptosis or like a de novo mast cell activation syndrome.

I think you're correct that there's something about the tic aspect to this that really seems to unnerve the mast cells. Right? And we still don't know in the saliva of the tick.

And for those listening, I think many know it's from the Lone Star tick. Right. That you're getting this. It's not from the usual Ixodes deer tick. And I'll have a question in a second about Haemophilus longer coyness about the Asian bush tick.

And you know where I'm going with this one, because it's been known to cause alpha gal in Asia and in parts, but we have not yet, as far as I know, seen it. I've not.

I mean, I look at the literature as best I can, but they people need to be aware, right, that it is from the Lone Star tick bite and it's from something the saliva.

But it's not been exactly identified. Right. I mean, I've seen high IgG levels in some of these patients. Right. But but we don't know exactly what it is that's triggering it at this point.

Correct? Correct. We think we are on the trail. And a lot of this work has been done by Shaheed Karim at the University of Southern Mississippi. He is, I think, on the track of, of chasing down some of the galactose or transferase enzymes that are in the tick saliva.

And you're correct when I say tick here I'm meaning amla Omar American, or the Lone Star tick when he silences a couple of these sort of suspect enzymes.

The ability of these ticks to induce the syndrome in the mouse model is significantly suppressed. So we think we're making good strides to, to really identify the culprit.

Enzymes present in the tick saliva. But you know what I in my framework there's two things going on. One is and I could I could certainly be wrong. But as I conceptualize it now, it's the tick bites a human.

And one possibility from these Lone Star ticks is that you develop an allergy to alpha gal, and we call it alpha gal syndrome, etc. AGS for short. I think the other thing that happens is you mentioned something about the tick bite really induces an IGI response.

So we will see what we call total IgG, or basically just the sum of all the allergic antibody responses. We see that total IGA jump significantly in patients with a history of tick bites.

And as you know, that total IgG response really is something that feeds mast cells. So you I think there's two different arms of this.

Treatment Options and Xolair

One is sort of that alpha gal arm, but I think the other is just that, that overwhelming IgG response. And that probably pushes the mast cells to be activated.

So, so in some of those patients they might get help from Cromwell and Sodium. They might get help from Monto, Lucas Singulair, quercetin P. A, luteal.

You know, all these things that are basically Marcelle inhibitors. They might get some help. And do you sometimes

use those in combination? Now with Solaris, that's something people maybe should be considering if they've got a severe case.

I think yes. Is the short answer. The Zola part of this? I would say we're behind a little bit because it doesn't have a mast cell related indication.

The food allergy indication is so new. But you're correct that when we can get it in the past for patients that may have allergic asthma, it really settles their mast cells down.

And there's this feedback loop between IgG and mast cells. And if you can take IGA out of circulation, so to speak, by through placing a patient on Zola, then eventually those mast cell IgG receptors go unoccupied.

And when that happens, the mast cell will internalize the receptor. And over the course of months, that really seems to settle down those mast cells. We use exactly several of those Marseille based stabilizing or inhibitor medications and supplements that you mentioned, and even ketoprofen some as well.

Yeah, a lot of our patients are on ketoprofen at this point for basically severe, severe mast cell and even chemical sensitivities. Some of these people, I have a patient from the south.

They cut grass in her backyard. She is so sensitive. If the window is open, she has anaphylactic reactions at this point just from smelling the grass.

And and she's on high dose ketoprofen an H1, h2 blockers, and she's doing all of it and it keeps her under control. But every once in a while, she needs an EpiPen.

She needs a medical dose back. She has to take high dose Benadryl. Like, it's fortunately not that often, but she is so sensitive, including the chemicals, that I'm doing everything I can to you know, keep this woman from having severe reactions. You.

I'm sure you must get some of those really severe overlaps in, in your clinic. Some of those overlaps. Correct. So, I don't consider myself a mast cell expert.

So some of those I have to refer out. Yeah. Well, we you're right there. I think the mast cell in my mind will become in the next decade. I think, a cell that we really are focused on and study much more because, as you mentioned, with some of the long Covid and even the the other viral post acute infection syndromes, it just seems like the mast cell is sitting at the center of a lot of these symptoms.

Yeah, it's it's becoming common. So question I brought this up before and I've never seen any published case reports. But the Asian push to come off list launch Aquinas is now spreading rapidly because it's a hermaphrodite.

Right. And in in Asia it has been associated with alpha gal. We're we're finding lots of bugs in this tick. We're finding Lyme disease and rickettsia.

Until they were finding bourbon viruses, they're finding all kinds of things. As far as you know, though, there's never been a case of alpha gal from an H major.

Canis bites so far, right? It's just mostly in Asia. It's not happened yet here. Correct. I haven't heard of any well documented H launch a cornice, associate an alpha gal syndrome cases in the US.

I like you and am worried as well, given its spread and the literature from from Japan about this. Yeah. So you know question in our in our patients when I do the workup when they come in for chronic Lyme and what I call Lims, which is I describe like you go to a doctor with 16 nails in your foot, you tell the doctor you have foot pain, and the doctor finds a nail and pulls it out and says, come back in a month and tell me how you feel.

I usually find this up to like 16 nails and one of them. And because you're an allergist, I'm curious because I didn't

learn this in med school. This is something I had to pick up in the integrative community.

I learned, of course, to do IGI, to do skin testing to allergist. I was not taught about to lead food sensitivities from the point of view of it, like an IgG reaction.

But like LabCorp has a panel of like a 95 or 96 food allergy panel for leaky gut and leaky gut, I think was poo pooed years ago. You'd see Hasan on levels, you know, they didn't really know.

Was it a real disease or wasn't it? It's now showing that these these tight junctions are really affected both in Covid and Lyme and allergies. Do you ever look for these like because this is not something I was taught and it was something I started expanding.

Is this something you've ever looked at or you might have an interest in looking? Because we do find that some of these patients that have like high levels and even a lab for IgG for allergy tests that don't show up on an ECG, they don't show up on skin testing, but let's say they've got citrus or something else that shows up on there.

They avoid it and they say, you know something? My itching is better, but it's not like they're having severe hives. It's not like they're having a lot of sneezing or allergic rhinitis or asthma.

But it's it's like they're almost they're getting a mild mast cell reaction with all of these inflammatory mediators that are coming out. And I was just curious if you've looked at it.

And if not, it might be something interesting to look at because I'm starting to find it in a lot of our patients. Yeah, we we have not. I think the traditional teaching in the allergy immunology space is that IgG4 is typically thought of as a marker for tolerance.

Mast Cell Overlap and Tick Biology

And but you know, that being said, clearly there are some diagnoses that where high levels of IgG4 are related to inflammatory conditions and some of those are handled by the rheumatologist.

So we have not spent much time looking at G4, but at least in this scenario, perhaps a little more in the eosinophilic esophagitis area. But I think we're not opposed to the idea that there could be a story related to G4, particularly, as you said, in some of these instances where people seem to have repeated reactions to specific food exposures but lack IGI.

Could G4 explain that? I think it's certainly reasonable to study it in greater detail. Yeah, yeah. No, I know it's an interesting point. So if somebody now has gotten this, they've got AlphaGo.

They're coming to you. The problem is from, you know, when I was on the HHS Take Point disease working group and working with the panel there, we were definitely highlighting, we discussed AlphaGo.

And one of the things that came up from some of the support groups was the AlphaGo was showing up, for example, in people that are even taking certain nutritional supplements which had bovine capsules.

Is there a list like do you have a place on a website or some place that you have so that somebody who's sensitive can go, all right, this is the list of all of the major allergens I should be looking at.

Because as you said, you're right. Even people strict, they try avoiding it, but it sneaks in and they didn't realize it might have been in a capsule or a supplement.

They were swollen. Where can they find out about this? Yeah, this is a major issue and one that we're hoping to sort of change some minds in Washington about, because the short answer is there really isn't a list.

And some of that I think there's two points. One is it I, I this is why I like to call it AlphaGo syndrome, because it's

not just avoiding beef, pork, lamb, venison, rabbit in your foods.

It becomes important. And medications in certain procedures and and devices and and even over the counter things. So what I would recommend to people is vegan med.org.

And that is a great website where they, they have pharmacists are kind of on the other end of it and they can do some research for you. The problem really is that if you're providing an over-the-counter medicine and let's say you have gelatin in that formulation, all that is really required is that the that it be gelatin.

You you don't have to these manufacturers don't have to really know whether the source of gelatin is fish, plant or animal at times. Be safe with something.

And then if the if the source of some of these inactive ingredients changes, it could you could have a reaction. Equally, you could have a reaction initially, but later on be safe because the plant based gelatin has now become cheaper.

And so that's what's used by the manufacturer. So the labeling part of this is really a challenge and one that we hope we can change. Right? We we discussed this a little bit at the working group and the need for that, because this can theoretically be a life threatening condition, right?

I mean, most people fortunately don't die from it, but it can theoretically be life threatening in theory. You're right. It could. Yeah. So what the people that you're seeing with AlphaGo, what are they carrying around?

Are they carrying around the typical auto EpiPen with Benadryl, with a medical dose pack like, what are you doing to protect them just in case they have an accidental exposure?

Yeah. So great question. The epinephrine auto injector is obviously the first and foremost type of thing. And in the setting of the avoidance diet. But often we'll have them have a you know, they may have a prescription for some some oral prednisone or major dose packet and that I don't like for, you know, that initial kind of lifesaving portion.

It takes the steroids a couple hours to kick in. So we talked through that with patients. And then we usually like to arm them with a long acting H1 blocker like Zyrtec, Allegra, XYZ, all those type of things.

Generics seem to be fine. These are all over-the-counter medicines then typically an H2 blocker for some patients really described difficult to control heartburn and, upset stomach.

So we'll use the H2 blockers like, a famotidine for them for that. And then often we still will have them carry kind of the old fashioned Benadryl, if you will, is, we we realize it has some off target effects and it wears off fairly quickly, but it can also be quite helpful for these reactions in terms of quieting symptoms within a quick period.

Yeah. Yeah. And those are those are the recommendations we've also been giving. But I'm glad to hear it from you. I don't have a lot of patients, but I, I do have somebody in the Carolina regions who's become a good friend over the years and just lovely woman.

And she got Alpha Gal a couple of years ago and yeah, she's had to be on a vegan diet and very careful. Fortunately, she has not had any major episodes because she's super strict.

But boy, it really changes your lifestyle when you know if you're a foodie like me, if you grew up in New York and you happened to be a foodie boy, getting a tick bite is, not the end of your life.

But boy, it certainly changes your lifestyle. In significant ways. Yeah, it sure can. I've. I've had patients tell me that they feel less southern because they can't eat pulled pork, barbecue or these type of things.

But I think it gets to what you're bringing up is that for adults to have maintained an open diet for, for decades, and then to suddenly have that change, we don't really talk about this too much in the food allergy landscape, but there

there can be some real feelings of loss in terms of the social activities and, and the things that one liked to do, such as eating out and enjoying really good food.

Now they have to be so careful that it can take on a different connotation, perhaps, right? And I know there's some really great support groups, that are out there.

Just just about every year with HHS, the Alpha gal support group would show up.

Food Labels, Emergency Medications, and Prevention

And I know that they would keep talking and talking about raising awareness. You know, to know that the average cases are at least a half a million, you know, that we're always underestimating at this point.

I mean, the CDC just came out and said, oh, we we changed our surveillance criteria. It wasn't 476,000 cases, you know, from a year or two ago. Now it's like it's closer to 650,000.

It went up 70% because of this surveillance criteria. So, you know, who knows among the allergist and even biologists that these people are having hives.

They think it's due to something else. And we may find actually it's even a lot worse than what we know. Yeah, absolutely. Yeah, I think there probably are patients with that gastrointestinal presentation.

Alpha gal syndrome that may not even be kind of in the allergist purview at all. Right. So do you when you tell your patients about tick prevention, most of the time, my my favorites are using like a picaridin 20% on the skin.

Really lemon eucalyptus if they don't want to use chemicals for women pregnant. The only one I've seen that's safe seems to be either 3535 from Europe.

It was studied in pregnant women for like 35 years. It's an amino acid base and then permethrin, you know, on clothing, deep woods, Deet. I mean, it's fine if you're going to do it from time to time.

But do you do you like any other prevention apart from, you know, where like close tuck in your your socks, take off your clothes and put them in the dryer when you come in.

But you you have these kind of conversations with patients as far as like standard tick prevention measures. Yeah, we do have these conversations. And and I think we all benefit from the great work that you and others have done in the field of Lyme disease.

And other tick borne infections, because we pull those recommendations from those who have gone before us. Right? We we stand on the shoulders of each other.

I think the only thing that I would probably add to what you said is just the typical idea of, you know, wear boots if you, if you can. And, and we usually tell people at least my understanding is that ticks often will be kind of or they prefer that sort of knee high grass.

So if you can stick to the trails, perhaps you're slightly safer in that regard. But it's really the very similar advice that I feel like we have taken in large part from from our friends in the northeast right now, the and as you know, with climate, it was just an article this morning about how climate change is increasing these vector borne diseases.

It's roughly been like 70% of the world's infectious diseases. And the ticks situation. I used to be that May was Lyme Awareness Month. And Rick fell from our area would say, well, it really should be April because the ticks are coming out three weeks earlier.

And now with the climate, it's like I'm reading reports year round that the ticks are out in December. When it's over 40 degrees, people are getting tick bites.

It's like this is unheard of right? That year round tick prevention. I don't think people realize it's gotten as bad as what it has. I think you're correct.

And to me, some of the evidence to support some of this is now from the tick surveillance related to the Lone Star tick, seeing their their expansion into even areas within the Great Lakes and moving westward across the US.

Right. Because because it started obviously in the Lone Star State, but from us it's gone from Long Island all the way up to Maine, into the Canadian border at this point.

I mean, the Lone Star tick is actually spreading faster than Ixodes ticks. And, you know, the moment I use for doctors when I'm training them, you know, if you did mathematics in med school, you may like this, but I call it tears with a V, which is tularemia or Licia alpha gal rickettsia story and viruses like heartland bourbon.

That's how I remember what's in the Lone Star tick. So if anybody gets bit, I have that moment in my head of like, oh, I should be checking maybe antibodies for this and just seeing, like, is it possible that that's what's going on?

No, I love it. I'm glad you shared that. Yeah, I did my monarchs throughout med school. This was my favorite one of my favorite ways to memorize stuff when I was when I was doing it.

So question why don't you get Alpha gal if people are able to avoid for long enough symptoms, get better, does it ever go away? Do you see milder cases over time that there's some type of tolerance?

Yeah, this is obviously a very hot topic and frequently asked question amongst people who develop it. And the short answer is we do see it go away. And I think what happens is from our, our work and that of others, that the cells that make the alpha gal IgG response initially seem to be basically short lived, kind of not their, their plasma blasts.

So they're young and immature. They're not memory cells importantly. So if we can prevent additional bites and that becomes obviously the big thing, it often is the case that alpha gal syndrome will well sort of resolve over a 3 to 5 year period, and people can kind of get back to eating as they once were without restrictions.

The real caveat in all this is that if you get additional bites, it almost seems to act as a booster, to those allergy producing cells and your alpha gal blood test number will rise and sometimes your sensitivity will change.

But I think the the other aspect of is it prolongs that time to resolution that that's a that at least gives some people hope that with really strict tick prevention.

Right. But you know, I think most people at this point, including myself, I like to garden. I like to get out there. I'm in the Hudson Valley. I mean, there's ticks.

We've had New York tick control come and spray twice a year with ultra tempo. It does not get into the groundwater. It's got a seven day half life. And you know we have ponded fish in the West and we have not seen ticks on our property.

But we had to get an electric fence for our dog because a dog on our property, Molly, used to play with the fox. They grew up together. There's a fox den and Molly would think it was a lot of fun to go running in the woods with the fox, and she would come back with ticks and it's like, it's by the way, I'm a huge dog lover, but it's the reason I had not had a dog for many years is because I was worried about, you know, the dogs bringing ticks.

And so now we got an electric fence, and we feed the fox. She got mange. Unfortunately, I tried giving her some ivermectin. By the way, I found that it's Sakata Scabies.

And I went hold on, I've been feeding this fox. Maybe I could get her to eat the ivermectin and, like, the dog food I've been feeding her. So I haven't seen her yet to see if she grew back her hair.

But I'm hoping that she'll come back soon. But it's. It's an issue keeping out the ticks. We've we've had a had a tick control property literally 15 years.

We have 50 to 60 bait boxes around over four acres of property for the mice. So every time they're going to eat eating the oats in there. Right. The permethrin roller is killing the ticks.

And that's how we stay safe on our property. But I'll tell you, people invite me over for barbecues and for stuff. It's like I'm scared to walk on people's lawns after what I've seen at this point.

And I think of the cattle. I mean, you've got it also down there. I mean, it's it's like you got to really be vigilant. The world has changed. You really do have to be vigilant.

And as you mentioned, these Lonestar ticks seem to be quite prolific in their ability to to spread into diverse regions and expand.

Recovery, Research, and Future Vaccines

And they I think the tick experts often say that they are kind of the hunters of the tick world and are really willing to bite humans, unfortunately. Right.

And for those who don't know that much about it, it's when you say the hunter, these guys will come running from 50ft away smelling your carbon dioxide and heat, whereas Ixodes ticks, it's something like 12 to 15ft, right?

So, you know, I put out a lot of heat and carbon dioxide. So I'm I'm normally a tick magnet. And I by the way, I did pick up even ten years ago, I picked up one of the first Lone Star ticks in our area.

One of the patients brought it in, and I saw the watermelon seed, you know, on the back of the tick. And I went, oh, my God, this is the beginning. That was probably about a decade ago in New York.

But by the way, one thing I realized when we were talking about Lone Star and I don't know if you've seen this with patients, the nymphs for the Lone Star can look like chigger bites.

We've had patients on Long Island and Montauk come in with these rashes on their legs. They said, oh, doc, I got bit by chiggers. And I realized that these were actually these may have actually been Lone Star tick bites that can resemble chiggers.

And, do you know if there's any difference in risk between the nymphs and the adults as far as the transmission? So, yeah, it's a really good point. And and we've seen very similar stories.

And I think you're right that when you ask people about ticks, they think about adult attached ticks. Yet we think about nymphs and larvae and that it really can look like chiggers, so to speak.

My sense and this is all clinical. It's not really laboratory based because I think these experiments are tough to do. My sense is that people that have bites from multiple nymphs or larvae are actually more likely to develop the alpha gal allergy response.

And so it does heighten my concern when I hear that story clinically. Right. And of course, the problem is with the larvae. I mean, the the nymphs are small enough, but the larvae are the size of a pinhead, and you can get a thousand larvae on your leg going through woods, and you don't you won't even barely see them.

And, and the last time I looked at the transmission rates for some of these, it was like around a 1% or less, but but still, you get enough of them on you, right?

There is a possibility of transmission. I never even seen it. Yeah, I think I think that that idea of enough of them on you is, is in some ways how I conceptualize this allergic response to that.

The number of bites probably raises your risk. And even if they are larvae or nymphs, the good news and I. I didn't know this by the way I had. I was curious about the people who avoid the allergen for years whether they could get over it, but so it's not necessarily a life sentence.

And that's extremely good news for people that it's not the memory cells, right? It's the plasma blasts that are actually creating the allergen. That's really good news for people to say, hey, listen, I got to wear light clothing, tuck it in.

Premature treating clothing, picaridin on the skin. Regular tick checks especially cause Powassan virus is transmitted within 15 minutes. Right. Rickettsia is transmitted within ten minutes. And.

And the winner of all of them is really a herbicide relapsing fever within five minutes. So, I mean, it's not like the tickets still be on you for a half hour or more.

You may not get Lyme for a half hour, but even there, what's now concerning me is these ticks at a partially fed where the organisms moved from the mid gut into the salivary glands.

Right. They're already there when they're biting. And I think that's going to be one of these issues of like people may be getting faster transmission of some of these than I think is being recognized from when the ticks are partially fed.

Yeah, I think it's a really valid concern. And my hope is that we can really start to do some more in-depth lab studies to get at some of these details that we see when we take care of patients.

And can we develop almost like more accurate models of what's happening in the real world, just like you mentioned, with a partial blood meal? And can we try to replicate that in the lab to inform, hopefully good advice for our people.

All right. Now. So this this was great Scott, and thank you for all of these updated developments. So apart from Zoller, which you know, again, I'm really happy to hear that there's a new treatment on board that that can help these patients.

In fact, this woman down in the Carolinas, I'm going to once it's approved by the FDA. And fortunately, she's been good, but I want to let her know about it.

Any other new developments? You know, before we end our talk today that you think, like, where the research needs to go or when fact, where you could even use research moneys, because hopefully these kind of conversations will stimulate more research, because the fact that it's spreading so quickly and can be theoretically life threatening, I think we do need more research.

Where else do you think the research needs to go? If you had unlimited funds at this point, what would you be doing right in your laboratory these days?

So two two main things come to mind. One is the idea that we don't really understand or know yet what the risk of a single tick bite that is a lone star tick.

What's your risk as a, as a as an infected person or bitten person of developing alpha gal allergy and the resulting syndrome. Right. So, you know, I think I credit Steve Rich a lot at UMass when he talks about surveillance is great, but we need to know about human biting ticks.

So what is that risk of that? The attached tick bite in areas like Montauk or Central Carolina where these ticks are really prevalent. So we want to study people longitudinally to basically help inform that I think really critical number of, you know, what is my risk from a specific bite.

The second thing that that funding would really be helpful for is I think we need to start working, and we're doing

some preliminary studies already on developing basically an allergy shot or in some ways to think about it as a vaccine for the tick saliva itself, because, you know, we we have a very similar approach for patients that are allergic to bees or wasps or yellowjackets, right.

We can't prevent that first allergic reaction to the bee sting, but we can then put them on allergy shots for bee venom so that if they are stung again, they don't develop that allergic response.

So the corollary that we want to do is look, we can't prevent perhaps that initial episode of of your alpha gal syndrome. But if we could then put you on allergy shots that center on the tick saliva, the hope would be that future tick bites don't then perpetuate the allergy.

So that would be a real win, I think, for helping people truly treat and perhaps cure their alpha gal syndrome. Right. And you probably know, I mean, the researchers have been looking at this tick spit vaccine.

Actually, I've been following it. My God, it's got to be a decade or longer. But, you know, I always see that there's some funding. There's not funding. It looks like it's moving ahead.

But I don't know. I don't see anything in the pipeline immediately that looks like it's coming out. But the truth is, is it's the most logical vaccine to put out there.

Is it because of all of these organisms that are now showing up in all these ticks? It's one way to basically stop it all in its tracks. If you could get the tick to fall off the minute that the saliva got in there right before it had a chance to inject all the organisms. That's right.

If you could recruit those immune cells, then I think you're absolutely right. You prevent the the entire cascade of things that happen thereafter. So, you know, I think our conversation today, considering how alpha is spreading and, you know, with your number of at least a half a million, I think that's really a great point for researchers and for people looking to fund that, that this is something that we really should be putting more time and effort into.

I certainly would be lining up, you know, to get one of these vaccines at this point once it's available, because it's just getting worse with climate change, and it's something we're all going to need to protect ourselves against.

So yeah. Yeah, I absolutely agree. Yeah Scott, this was wonderful. It was great. It was great connecting you and having a conversation on this. Thanks for hosting me today.

I appreciate it. It's really wonderful. So for everybody listening, we've all had the pleasure of listening to Doctor Scott Cummings from the Unk Allergy Immunology Group.

He was one of really one of the first leading researchers talking about alpha gal. We've discussed today prevention, risk symptoms and treatment options.

Scott, really wonderful news that you're making some headway with Zoller and certain new treatments and that it may not be a life sentence for people for their whole lives.

That's really good news for people who suffer from it. So thank you for taking the time today. I look forward to seeing more of your research. And, let's, let's connect soon and hopefully, maybe we can help each other along the way.

Sounds great. My pleasure. Thank you. Okay. Have a great day.