Why Standard Lyme Tests Fail—And What To Do Instead Transcript

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Introduction and guest background

Hi, and welcome to another episode of the Healing Lime 2.0 summit. I'm your host, Doctor Mariah Hinchey, and today we are going to be talking about the very important topic of how to make a clinical diagnosis of various vector borne diseases, including Lyme, as well as talking about common pitfalls with testing and the importance of using a specialty lab when we do test.

So joining me is expert doctor Joseph Bura Sukarno and he hi. He is a physician who specializes in the diagnosis and treatment of Lyme and associated complex infectious disease and the chronic illnesses that accompany them.

He is best known for his educational presentations and for his monographs on diagnostic and treatment guidelines for Lyme and related tick borne illnesses.

This is a classic series that has been freely circulated around the world since 1989. He has decades of experience and research in this field and has appeared on virtually every form of media.

He has advised the CDC, the NIH. He's testified before the U. S. Senate, and he is also a founding member of Eyelids, the International Lyme and Associated Diseases Society.

He's also served as the director of the island's educational foundation. Welcome, doctor Buro Scotto, thank you so much for joining us. And sharing your immense knowledge on this issue.

Thank you for being so nice, cause. All right, so before we get into the clinical diagnosis piece, let's dive right into the testing. So obviously we know that conventional laboratories are so flawed when it comes to testing for Lyme and co-infections.

But there can even be issues as far as timing and knowing what to test for when it comes to using specialty labs. So let's just start with the very, very basics.

We have direct test where we're looking for genetic, information from the actual infection. And then we have indirect tests where we're looking at the patient's immune response to that infection.

Direct vs indirect testing basics

Can you kind of walk us through the two and, kind of go over pitfalls regarding the two different types of tests and when one would be appropriate over the other?

Sure. To understand the testing, you also have to understand the body and the infection and the the interaction between the two. So let's say you have a tick borne infection.

You get a tick bite and you start to get sick. Well, in the very beginning, the numbers of germs in your system start to rapidly increase because the immune system hasn't matured yet and hasn't been able to fight it off.

Over a period of weeks, the immune system starts its recognition and starts to build up antibodies and T-cell responses and so forth. And gradually that starts to work.

And the number of germs decreases. And over a few months, especially of treatment, it's not given the immune response matures further and usually and testing of indirect things like antibody levels becomes the way to go.

But over a period of time, if it's a chronic infection, meeting six months to a year or more, the immune system starts to become dysfunctional and the germs which have been suppressed by this immune system start to grow back in

higher numbers.

Number one, because of this dysfunction of the immune system. And number two, the germs adapt to the host. And they know how to live in a body. That's their nature.

So what that means is different phases of the infection are best approached with different types of tests, starting very simply in the very, very beginning.

Let's say you have a tick bite and you start to develop a bump at the bite, or you think, you know, I was bitten 3 or 4 days ago and this is starting to react.

Is there a test at that point that really works? Probably not. Okay, unless you want to biopsy the skin and look at it. But even then, where do you send the biopsy and who's going to look at it and how accurate is it?

However, by the second week, even by the end of the first week, but more into the second week, you can start to get the early immune responses. And that can be measured best by a T-cell response assay.

They call them early spots and a number of different chemical names for them. But immune cell response by T cells is the first one. Now, in some infections, like the diseases, you can get direct testing.

And the kind of direct test for the BCA usually involves looking at a blood smear that also is very good early in the infection because it's a higher germ quantity and a lower immune response.

So what kind of blood smear do you get? Well, if you went to a hospital, they'll put a drop of your blood on a glass slide and put the same kind of stain on it that you used to look for blood cells and look under the microscope, and they sort of count cells.

And every so often I see a parasite floating around on that. And that's the accuracy of that depends on the microscope, the bulb and the microscope, the quality of the stain and the technician's training and how long they decide to spend on the slide.

Five minutes, ten minutes, half an hour, and all various. So to get a more accurate test, they developed what's called a fish, a fluorescent in situ hybridization that's still a blood smear, a drop of blood on a glass slide.

But instead of using a regular stain, which is like ink, they use a fluorescent stain that binds to the RNA of the germ. And that's very good for a few reasons.

Number one, when you look under the microscope, instead of a regular bulb, use a black light and the thing lights up like fluorescent and you can see it really easily.

So it's much more sensitive of a test by 100 to 1000 times more sensitive. Also, this dye, this fluorescent thing that you'll see in penetrates biofilms so germs and biofilms can be detected.

And the second thing is because it's a specific test, it binds to the RNA of the germ or the BCA that have it for Bartonella as well. You're not going to get a false reading from, say, a different parasite.

It's not going to pick up malaria. If you have dementia, it's not going to pick up a different bacterium. It's not going to confuse a platelet with a Berbizier organism so early on.

For BBC Bartonella, a fish test is very good early on for Lyme and Borrelia. The T-cell response assay is good by the third week between second and third week is when the immuno blot from my genetics starts to become sensitive.

And we've seen that clinically, even as early as the end of the first week. But that's kind of the exception. And in fact, in testing, by using CDC samples, early Lyme and by the CDC's definition, which is getting a rash, they picked

up 93% of the cases.

So if you're into like the first several weeks of the infection, you can get an indirect test like an immuno block that's available for Lyme and BBC, Bartonella and so forth.

So that's a really good way to go.

Early infection testing and specialty lab methods

Now let's say you've been exposed to take you didn't really know you had a tick bite, but you're suspicious of it because a few weeks late is starting to feel flulike and headache and you're not feeling well, and you need to be sore and you're forgetting where you put your keys.

All those things, and you forget your kids names, you know? And you call them by the dog's name anyway. So you say, you know, I want to. I picked up Lyme disease or one of those at this point, an indirect test, like an immuno block, for example, or the one home test called the accident.

Those are really very good because again, the pick up rate is between 80 and 90% of the average, tick borne infection. And again available for Lyme relapsing fever, Borrelia for the Bartonella.

Now what about a Rickettsia infection? Rocky mountain spy fever, early cat and plasma. They're different. Most of the time there acute infections you get sick with in a matter of days.

Two weeks. You have a fever, have a really bad knife in the head. Kind of a headache. You may or may not get a spotted rash on the hands, as well as on the arms and legs.

And that's important, because if you get an acute infection for one of these, that can become rapidly fatal, believe it or not. And we've have seen fatalities from undiagnosed patients, but that's much more of a clinical diagnosis.

And the surrounding tests for that really don't become positive right away. For the first couple of weeks. And, you know, the typical story is you hear someone big mated to a hospital with acute fever and very sore and everything else.

And low white count is another sign of this. A low platelet count is not a sign of this. Sometimes liver enzymes go up and they think they have sepsis or some nonspecific infection.

They give you a general purpose antibiotic which doesn't kill these rickettsia. And the person gets sicker and sicker. Sometimes they die. So the index of suspicion is high.

And you have to treat it with a specific antibiotic family, like the doc says. And family tetracycline family, sometimes others. And that's where the clinical diagnosis really is very important, right?

When you get into a chronic infection, that's when the immune system starts to break down. In my own patients, I start to see that about one year where it's really pretty clear.

Others have seen it as early as six months into the infection. That's different. That's when all the tests become less sensitive. The germs have adapted to the host.

They evade the immune system. So antibody tests like I mean blood serology analyzes Western blots become less sensitive. The, the germs form a complex with the antibodies and they bind to each other and they're no longer freely available.

The antibody is no longer freely floating around in the bloodstream. So if you do a test looking for antibodies, you may not find them just because they're sequestered.

The hidden. And that's why when you treat the patients, sometimes the antibody test which was negative becomes positive, which was a little positive in determinant becomes a true positive.

Or if you get a Western blot image about the number of bands increases because you freeing up antibody. So if you see statistics like our test will pick up 80% of the infections.

Well, these are people who are not chronic who don't have this immune complex problem. So that's why we say, you know, it's always a clinical diagnosis.

And the testing can be negative in the true positive patient. Now in someone who's very sick, very advanced Lyme, other tick borne diseases, you have a poor immune system.

You probably have built up of toxins. You probably have yeast going on, you know, all the other things. And in that case, you really need to use a combination of different types of tests to get a broader picture of what's going on.

So in that case, you definitely want to try and use both an indirect test like an antibody test and a direct test, like a culture or fish test or a blood smear.

And that's it in a nutshell. We can go on to specifics if you want. Yeah, I have a question. So why is the fish only available for babies? Bartonella?

Because it's more accurate than doing a regular PCR. Correct. Why is there one for Lyme? T lab does offer one for Borrelia, but, you know, Lyme is more of a tissue infection than a bloodstream infection.

And yes, they do transmit to the blood. People say, well, they don't live in the bloodstream. Well that's ridiculous. How does it tick get infected when it drinks blood?

It's definitely in the bloodstream, but it zips by really quickly and in small amounts. It also is not steadily in the blood. They attach or adhere to the lining of the blood vessels for a while, and then they release and they run along.

They attach again and release. So maybe intermittent amounts. So taking a direct test in the blood, for, for Borrelia, especially Lyme is really not that sensitive because of this intermittent phenomenon.

If it's in the. Person's body that likes to live in the right, they live. Cells. Yeah, red. The bees in Bartonella tend to have at least part of their life cycle in your blood cells.

So if you look at the blood, you see it, you know. Right. But Borrelia live in the tissue cells. Now, if you did a biopsy of someone's heart or their brain or some other thought part, then you'll be able to see it on a fish.

And that's what T lab offers, right? Okay. So to summarize for everyone listening. So really getting tested within the first couple days of getting a tick bite as far as doing tick borne disease testing, you're typically not going to be very accurate.

But within the first 1 to 2 weeks for Borrelia, you could have a T-cell assay. And for BRCA Bartonella you could do the fish test. And those would give you the highest levels of accuracy.

Do you know specifically, I think you said for the Bayesian Bartonella fish, it was like 96%. Is that did I hear you correctly? No. For Borrelia in the I mean, a blood test, which is a serology, by the time the rash develops, it picked up 80.

I'm sorry, 93% of cases. And one of those. Gotcha. Okay. BBC is different. You know, if you went to the hospital, the acute infection, they suspected the BS and they looked at the blood smear, the standard microscope and dye and all that.

That's only accurate in the first week. The CDC claims the first two weeks. But my experience, by the first end of the first week, the germ count goes lower because they start to sequester.

They get stuck in blood vessels and blood clots. The immune system starts to fight them off. So that's when you have to go to a more sensitive test, like a fish.

Now it was a fish on a no, because, like, you go and use a different way to fish. You go fishing in the ocean. You're always catch a fish, but it doesn't mean they're not there.

So you have to be lucky in a sense, and catch it. That's another thing that we often do, is more than one blood test. You know, the labs will test a small volume of blood, say draw 2 or 3 tubes.

You do it for a few days in a row. I know Galaxy Labs, for example. When they do a Bartonella testing, they want three separate blood tests sent in separately, gets expensive and takes a lot of time.

But that's the state of the art right now. Unfortunately. Right. Okay. And so then once, if you're going to use an indirect test. So the first to the T-cell assay in the fish are direct, if you want to use an indirect test like an immuno blot, then for exams peak production is around 3 to 4 weeks.

And for IgG no. There's no actually an exam can be the end of the first week. Okay. With a similar blot. I mean, that's what we've seen with a standard serology like an IFA or lies or even the Western blot.

You really have to wait 4 to 6 weeks. Okay. So different technology. Totally. So if you're doing an exam immuno blot for Borrelia. Yeah. What week would you recommend waiting until for peak exam detection.

Week number two. Week number two. Okay. That's not the peak. That's the beginning of it. The peak is the fourth week. But the beginning at least by the second week, if not earlier okay.

So peak production is fourth week for IgG and then for IGI. What would be peak week production is that around week. So you don't see that in good amounts until the fourth week or afterwards.

But the paradox is see, some people with Lyme don't develop a positive side ever. Now the dogma in medicine, in infectious disease, in immunology is you get an infection right away.

You start getting IgG and response that disappears after, say, 4 to 6 weeks, and then you get an IG response that takes over and that persists until the infection is long gone.

Right. However, because of this dysfunction of the immune system, sometimes you only stay with IG and it never converts IgG. And that's where a big problem with testing comes in.

So we want to talk about specific testing. We'll go into that as well. Yes definitely. So first though I want to say there are a certain number of patients, right, that are seronegative that do not make antibodies or they make antibodies that are so low, especially with ECGs, as you were just saying, that they could get an indeterminate.

But I think it's important for the listeners to understand this point.

Chronic infection, seronegativity, and test interpretation

So even if you're using a specialty lab like Hygin X, and let's say that your test comes back negative because in determinants aren't counted as pluses for anyone who has seen an eye test, we have to know how to interpret this test as a clinician and for our patients, you know, our listeners who are patients listening, your doctor has to know how to look at these tests as clues or supportive evidence that your immune system has been exposed to this infection and to the various proteins that are being analyzed, because if you have indeterminate levels of antibodies, it's still showing that your like your body had to have seen some of this to be able to make that immunological reaction.

And if we think about it from just a common sense standpoint, we're looking for an infection that causes immune dysfunction and oftentimes immune suppression or antibody suppression.

By measuring antibody levels. So I always say like we have to look at any detectable amounts of antibodies seriously, especially if the person has the clinical presentation of these infections.

Well, the answer is both yes and no. Okay. All right. It has to do with testing technology. Okay. When you say an image to blot, truthfully, an image of blood is a generic term, is any kind of a blood test for an infection where you separately look at the different antibodies that are formed to it.

So immune blocks, like an umbrella term, a Western blot is a form of an immuno blot. When we talk about Nigeria, similar blot, that's a specific thing.

They use capital letters. It's a specific completely different test. And it's unfortunate. It's sounds like a Western blot because it's completely different.

The difference is a Western blot, let's say for Lyme they make them for other ones, but for Lyme they take a whole germ. They break into million little pieces, and they use these to make the test. And they look for reactions to the different proteins that came from that germ.

The problem is a bacterium is a bacterium. There are a lot of germs that are not specific for Lyme. You can pick up other bacteria. That's typical Western blot.

You can pick up viruses with a Western blot. You can even pick up autoimmune antibodies for the western blot. So what I did was they completely did did away with that totally.

And the antigens they use on the immuno blot, what make the little lines or the blots, the strips, whatever you want to call it. The bands. The the laboratory created synthetic proteins that are specific to the germ and germs that they're looking for.

So what that means is that in some of this series, I forgot like relapsing fever is that specificity is 100%. There's no cross-reactivity with syphilis or oral Sparky to viruses.

With the Western blot, you can cross for the act with Epstein-Barr. So if you see an indeterminate western blot, like one band or a couple of bands that are very like weak and they're not really called positive, well, that means the body's reacting to something and it could be a virus, it could be an immunity, it could be a lot of things.

But an immuno blot that's different. If you see reactivity, then you know something's going on. Another thing, if you have an indeterminate immuno blot for my genetics, for Lyme, even though they said there's no cross-reactivity with with relapsing fever, I would still say, you know what?

There's still a Borrelia floating around. Why don't you then go for a relapsing fever immuno blot as well? And that might give you some more information.

Okay. So do you look at the indeterminate levels on specifically an immuno blot. Let's say that you're reacting to the starred bands that are specific.

How would you interpret that? That's if. The patient is. Symptomatic case. You're right. Then I'd say, yeah, something's going on. We can't ignore it.

Again, as you said, the lab tests are supportive. You know, you're a clinician. You figure it out clinically. If you're a patient and you know your body better than any doctor, you keep track or write notes, a diary, whatever.

Keep a temporary record if you have to, but you know something's going on. And then if you get an indeterminate, even on an immuno block, it's all right.

Either repeat the test and just get a second opinion. You know, that second immuno block. Or maybe I'll do a drug test or dual culture if it's a Bartonella or you'll do it, I mean, blood and we'll do a fish.

You can get a culture for those two. So you know something's going on. And if you need to document it, then you do an additional test. Yeah. And I think.

Interrupt. But for Bartonella it's very hard to pick a Bartonella. And what we always recommend, especially in established case is you do all of them.

You do an apply for the indirect test. You do a fish and a quarter for the direct do all three, because there are cases where one will be positive and the other ones won't.

But because those three tests for my genetics is so highly specific, if you get one positive and two negatives, you believe the positive one. Right? Okay.

So when it comes to kind of contrasting because I think this is important for our listeners that might not know a lot about testing what would be the main, differences between what a conventional laboratory would be looking at versus a specialty testing company like Iconix, just with their basic like, you know, if you're looking at an Eliza and, and a Western blot through them, like, what are they missing and why?

Marshall laboratories don't make their own blood test kits, okay? The big labs, like, I'll say, quest and lab, they don't make their own. They don't grow spider kits and little dark lab in the corner to buy test kits from other manufacturers, both in America and in Europe.

And maybe also, I'm not sure, but test kits in the United States have to be put to FDA clearance. And now until now, which is a whole different story.

But up until now, the only test kits that have been cleared were based on a very specific single strain of a single species of one Borrelia that came from a tick and not a human being that came from New York, from an island off the coast.

And that's it. Now, the problem is, there are a lot of different Borelli in the country, a lot of different strains of that one, really, a lot of different species of different Borrelia.

So if you base your testing for all of Lyme and all of American overseas on one specific germ that came from a tick and not even a person, you're going to miss a lot.

So that's the dilemma. So what I genetics is on the immune block is an example for Lyme, is that they look at dozens of different species with their fish tests and their culture.

They look at the genus level. So germs that are in the hierarchy of genus, which is Borrelia, and species like Bergdorf, right, or Bartonella and Bartonella hensley.

So they look at all Bartonella, all the bees when they do those drug tests. So that way the specialty labs will look for all the different varieties. And it really radically increases the sensitivity.

And that's why so many people have clinical Lyme. And they get a negative test from a big commercial lab. They say, I just read an article this morning while Lyme disease was ruled out by a negative test, you never will that Lyme disease by a negative test because there are negatives are a lot of false negatives, especially the commercial labs.

Now I say, but one thing it's different is that, the Lyme in me, the argument about for my genetics now has been FDA cleared. It's not yet in production, but when it is, it's up to the private labs whether they want to use that better test.

We'll see. That would be amazing. And really like the way that I kind of try to summarize it to my patients, because a lot of times when you're talking and you start talking about species and things like that, it gets confusing.

But like the analogy that I like to use is, you know, let's say that I gave you a box of crayons that had 20 different colors in it, and you pick one out and let's say you pick a purple one and I say, okay, I'm going to use my test.

That only picks up a red crayon to tell me if you have a crayon or not. Right. And then I come over to your purple crayon and you go, nope, it's not a red crayon.

Therefore you don't have a crayon.

Conventional labs vs specialty labs

And it's like you're just you're missing all of those other colors of crayons that are sitting there. So, all of this being said, right, even though I genex is considered the gold standard, you know, there's no test that's 100% accurate for the reasons that we just went through.

When you're testing makes a difference. What test you're testing for makes a difference. Even knowing what to order, right. As a clinician, if you don't order the right test, then it's not going to come back positive either.

So taking all of that into account, you know, these are clinical diagnosis things that should be made for these infections. So let's move into the clinical diagnosis.

So let's start by going through what you would consider to be kind of the most typical acute presentation of Lyme. And let's contrast that with the most typical, which is kind of laughable because it presents so many different ways in so many different people.

But the most classic chronic presentation of Borrelia. Okay, we can start with Borrelia because we can do them all. Yes. And we will. Go, okay. Borrelia such as Lyme and relapsing fever generally has a slow onset.

In other words, you might have had an exposure of the weekend when you were vacationing or whatever. And over the next several days, two weeks, you start to feel like a virus and not really well.

And then instead of going away like a virus would go away, it starts to spread to other organs where you have, a multiple organ involvement. In other words, you might have, as I said before, you get forgetful and you start to get headaches, you start to have pains in the joint and you get sluggish and tired.

That afternoon. You start to like, I'd like to take a nap. So it starts to evolve into a multi-system thing. Next thing is, it migrates, so you might have sore fingers for a while and then seems to be the knee, and then you start to get more headaches that start to go away.

And then you start to get something in your ankle, something it's migrating like that is another sign of Lyme. And the other sign of Lyme is that the symptoms wax and wane once they're established on a cycle that's generally four weeks long.

So if you keep a diary with a calendar, you can see, you know, about every four weeks. They seem to be worse and then better and then worse and then better.

And every time you get worse and better, it might be a different part of the body. That's the migration. So Lyme is a multi-system, migratory and cyclic disease.

And that's why when clinical diagnosis is made you need to you know, you need to be very good, historian to yourself, which you never know with Lyme brain.

Keep a daily diary. And that's what I always recommend. And as a physician you need to say to the patients tell me

what's going on and listen to them, listen to the patient, don't dismiss it.

So many times the line patients are told they're crazy or they think that histrionic because you were here last week with a bad knee, and I hear the headache, and we took care of that.

And it was a migraine. No, it wasn't migraines, maybe. But then you come in next week and your feet and your hands are tingling and numb. They start to think you're crazy or you're trying to, you know, make stories.

But that's not that's the disease. Right. And I think that's one of like the hallmark symptoms to write when you have a patient comes in that tells you this.

They've written from Doctor, doctor and, you know, they've been offered psychiatric medications and, you know, dismissed. Like, that's. Especially if you start to have headaches.

You your doctor doesn't find a reason for it. Or you go to a walk in clinic, which is always a disaster. It's been their allergist and they do what they do.

And then you start to get joint pain. So go to rheumatologist and then they do what they do and then you start to get heart palpitations. So then you go to the cardio.

So then go back to the primary doctor or some other doctor say well again to five different specialists in the last five months. Yeah, obviously crazy right?

It's such a shame. Yeah. Okay. So moving on. Bbca what would you say are the classic symptoms of the bees? Yeah. The bees can have general symptoms like Lyme, the fatigue and feeling poorly and all that.

But there's some other things that are clues. Some cases of bees, it can occur acutely, but usually they don't. It's also gradual onset. But the difference between this and Lyme is that it doesn't really have joint involvement other than just body being achy.

Clinical presentation of Lyme, Babesia, and Bartonella

But it does have other things. The headache from the bees is more like a migraine. We are sensitive to light and pounding and that type of thing. And the paradox is even migraine medications will make the bees headaches respond, at least temporarily.

So that can be, you know, a confusion that the other thing that busy does is it gives you a sense of what we call air hunger, that you feel like you can't catch your breath, even if you're just sitting talking on the phone.

You have to take a breath like that. Like, why am I short of breath? And you can go up or down stairs, fine. But even sitting you might have to take this breath can be a dry cough for no apparent reason.

Has to do with blood not flowing properly to the lungs. Another reason or another manifestation of that is it is in the brain. Aside from the confusion and all the the, you know, the cognitive difficulties that can be confused with life.

Another thing that's more specific for the bees is a sense of imbalance, which is kind of a strange feeling, like as if you've been on a boat all day now you got on dry land.

So it's not vertigo with spinning. It's not lightheaded like you got up too quickly. It's more of a tip off balance for me. Walking up the stairs, I feel like I feel like I'm going to fall backwards, you know, some strange lack of balance.

You go to a neurologist, this. They look at you as a cross size, like, I don't know what you're talking back. Then they give you all these spinning tests which which you pass and they say, I don't know what it it's you know, that's one of the signs for these.

The other thing is with the bees, you can get day and night sweats. Lyme may not be that way. In fact, it's rare to see any kind of sweating or fevers with Lyme other than a tiny low grade in the afternoon.

But the bees, you can get real fevers, you can get real sweats, day sweats and night sweats. And you're not in menopause. With babies year two, like, with its cycle.

I've heard that it's sometimes like the cycle. Instead of being, like, every four weeks, the symptoms become aggravated. Like every five days, roughly.

Is that something that you consider to be true? It's hard to pick them out, but if you're very diligent about keeping records. Yeah, that seems to be a very slight cycle of 5 to 7 days long probation.

Not so dramatically so. But, you know, it's let's say you, you know, by Wednesday, maybe it's because of work. I'm having these worst sweats or maybe the weekend.

You blame it on a lot of the things, but it doesn't seem to have a pattern like that. But it's very, very subtle. Not everybody picks it up. Okay. And then Bartonella, what would you say are the hallmark symptoms of of Bartonella?

Again, the general symptoms, like all the tick borne infections, you get the fatigue and the body aches and so forth. But Bartonella can do a number of strange things that differentiate it from Lyme.

The most prominent one of the most concerning one has to do with the nervous system. Cornella can both irritate and stimulate the nervous system, the central nervous system in the brain.

So people who never had neurologic problems before and can start to have anxiety, insomnia, shakiness, seizures, even pseudo seizures or real seizures that can become, well, a personality change that can become anxious, depressed.

Sometimes very bad behavior can come from Bartonella. I've seen young people in institutions from Bartonella because they're violent and unreasonable.

Very bad school behavior, very bad work behavior, people having road rage, which they never had before. So it's a it's like an a stimulation and aggravation of the nervous system.

We call it neuro neurotoxicity or cytotoxicity. That's one of the most concerning things that differentiates that from mine. Another thing is Bartonella can get into the tissue, does get in the tissues and can cause pains and in the body.

But Lyme pains are specific to the joint, the tissues around the joint, whereas Bartonella pains are in the ligaments and tendons. So it's not just in and around the joint and can be up and down the arms and legs all the way up and down could be the soles of the feet in the morning, get out of bed.

And it's like, oh, it hurts to walk in, to start to get moving. That's another very subtle sign of Bartonella that you don't see often. Right. And then also the striae rash. Right.

And sometimes there can be like these little like tender nodules along the extremity. Two. Right. So those are two physical findings that you wouldn't see with Lyme or BCR.

See the Bartonella. They call them tracks, tracks. They look like stretch marks from a distance. But they're really not, first of all, stretch marks because your body's stretching from gaining weight to being pregnant or whatever.

And they follow skin planes with the Bartonella tracks do not follow skin planes. They can be completely perpendicular to them. Stretch marks are pale and silvery, whereas Bartonella tracks are usually reddened.

And they're not straight. That can be wiggly, it can be tubular, can be wiggly as well. And they don't seem to go

where stretch marks would go, although they can.

So if someone who knows what to look for, it definitely looks different now because Bartonella gets in the ligaments and tendons. You know, our muscles are encased in like a tendon sheath, and these are affected by Bartonella as well.

So if you run your hand down the outer thigh, for example, or the back of your upper arm, you might find it's tender with little subcutaneous tendon nodules under the skin.

And that's one of the things you see with Bartonella. With treatment they become less tender and finally go away. You know, I've seen that. And I've also seen the, the tracks kind of move and and heal up and change.

I have patients, take pictures of their of their tracks or their striae rash. And they are amazed when they see them change over time with treatment. You can biopsy those rashes and find Bartonella and Lyme in them, too.

Yeah, I've heard that. And then, of course, you know, if you have more than one co-infection, which is common with Lyme or any of these, you know, now, kind of like all bets are off as far as what the what the symptoms are.

And unfortunately, these infections kind of work synergistically together, right? And can actually hide out behind various biofilms together. And, you know, it sounds like we're talking about like some sci fi movie, but like, they can actually share information and almost like plot on how to like, you know, evade the immune system.

So it's really important to know what you're dealing with if you're going to be using pharmaceutical antibiotics as treatment, all of these different infections require different combinations of different classes of antibiotics.

You know, to be able to fully eradicate them. And it's just it's so important that you know what you are dealing with because, you know, if you have the BCA and you're just treating Lyme, even if you're treating Lyme appropriately, your road to getting better is going to be so much harder.

And and dare I say, like not going to happen if you're not addressing the underlying BRCA or Bartonella, for example, infections. And, you know, it's funny because how you respond to treatment is another clinical clue to clinical diagnosis.

For example, most Lyme medications will suppress but not kill Bartonella. So a typical story is a given treatment for Lyme. And you know, you have limited to take line treatment.

You improve to a plateau or to a point, and you never get 100% back to normal. And if you stop the antibiotics saying, well, that seemed to be, you know, hit a plateau, let's stop.

Lyme takes weeks to start to get worse, whereas bar now can take matter of three, 4 or 5 days get worse. So you have stopping treatment while you're still symptomatic.

And by the end of the next week is really sick. Again, that's include Bartonella. So how you respond to treatments is another thing to look for that gives you a clue.

Yeah. So Doctor Baskin, so before we end, which I can't believe our time is almost up here. If you have any advice that you'd like to share with our listeners, like, if you could give one strong piece of advice, what would it be?

Well, first, most importantly is believe in yourself. You're not crazy. You're not going through some life crisis. Or maybe you are, but that's separate.

I mean, you know. It could be exacerbating it. Absolutely. I mean, you know, it's the battle of the immune system versus the German. If you have stressors in your life that battle tips in favor of the germ.

So, number one, believe in yourself and take it seriously and do the diary.

Practical advice and closing

What I recommend is you just get a calendar where each page is a month and just mark down different things each of the days, because you don't want this 20 page diary the doctor's not going to read.

It's going to make you crazy what you do if you just mark down a good day or a bad day. And like the day I started to stop the medication. And this way, number one, you have a record of what's been going on.

And number two, you can see the pattern is a weekly cycle, is a four week cycle. Is this migratory. Those are the clues. You need to start that right away way before you start to see the practitioner.

Because you want to have that as part of your history. Yeah that's super helpful. And and also, you know, by the time you find a practitioner and wait to get in because so many people have such long wait lists, you know, you could have really a solid pattern, you know, that you're looking at.

And even though I guess some doctors might think that looks more crazy, I think that that looks diligent. You know, it looks like you're trying to get to the bottom of it.

You're not histrionic. You're not, you know, you're really trying to to hold. To look for that. If the doctor looks at that and says, this is not good, find another doctor.

Yeah. Exam related practitioner, whether it be an MD knee or whatever, they're going to appreciate that and know exactly what you're doing. If they say this is crazy, you know you're crazy, don't even waste your time.

Yeah, I agree, I don't know of any Lyme literate practitioner that is going to dismiss any of your symptoms. And I think this is a huge point and a great point that you just made.

If they do then then sorry, but I don't think there are Lyme literate practitioner. No. So doctor, kind of thank you so much for being here with us. I know that our listeners learned so much from you, as always, and to all of you at home listening to us, I sincerely hope that this has helped you and your loved ones on your journey from healing Lyme.

We'll see. It's always a pleasure to have this time with you and I appreciate it. Thank you.