

Sawbones 108: Lyme Disease

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Clint: Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour, and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax, and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

Justin:

Hello everybody, and welcome to Sawbones, a marital tour of misguided medicine. I am your co-host, Justin McElroy.

Sydnee:

And I'm Sydnee McElroy.

Justin:

Syd, do you want to hear—it's Halloween. Do you want to hear a spooey story?

Sydnee:

You know I'm all in for spooey stories.

Justin:

Um, this is my spooey story. When I was a kid, I thought that Lyme disease and scurvy were the same thing, because I knew you had to eat citrus to get rid of scurvy. So, I thought Lyme disease and scurvy were the same thing until I was, like, in my late teens.

Sydnee:

That, that's your... That, is that it? Are you done?

Justin:

Yeah. That's the spooey story.

Sydnee:

Okay. I'm confused. Which part of that is spooey?

Justin:

Well, you... Um, the spooey part is, you married me. And also we have an infant daughter.

Sydnee:

Okay. [laughs] Fair. Fair. That's—

Justin:

Pretty spooey, right?

Sydnee:

Yeah. I don't even know spooey would be the word. I think more, like, horrifying, if I contemplate it.

Justin:

Well, don't think about it too much.

Sydnee:

Like, terrified, that's like...

Justin:

Yeah. This is... That's, let's not—

Sydnee:

... Bone chattering, like—

Justin:

I thought that, um... Yeah. I thought they were the same thing.

Sydnee:

Like sheer, abject terror.

Justin:

Okay. Well, moving on. You told me we're talking about Lyme disease, and that's my anecdote about Lyme disease, okay? So there.

Sydnee:

[laughs] It was a good one, I think.

Justin:

Thanks. Thank you.

Sydnee:

Thanks for sharing that intimate detail of your life.

Justin:

Yeah. It was a painful story.

Sydnee:

It's okay. 'Cause in the Halloween spirit, I will tell you that for many years I said, um, instead of pumpkin, um, I said, uh, pump—

Justin:

Punkman.

Sydnee:

Punkman. Yes. I said punkman for many years.

Justin:

I couldn't say... I couldn't say mischief—

Sydnee:

Really?

Justin:

... For, like, the first 15 years or so I was on earth.

Sydnee:

Did your... Did your parents correct you?

Justin:

Uh, When I said mishfish? No.

Sydnee:

Really?

Justin:

They didn't.

Sydnee:

See, my parents never told me that it wasn't punkman. So, like, I was... I, I thought punkman. And I also thought that, if I saw, like, a teacher was M-R-S, period.

Justin:

Mm-hmm.

Sydnee:

Like, it was a female teacher, and we were supposed to call her Mrs whatever. I thought it was 'misres.' And I called my... I remember calling my *fifth grade teacher* 'misres.' And my parents didn't correct me. We're gonna do better. [laughs]

Justin:

We're going to do better.

Sydnee:

We're gonna do better. Uh, So let's talk about Lyme disease, Justin. Uh, a lot of people have suggested um, that we do Lyme disease have, have kind of searched, and then been shocked we haven't covered it yet. And so, have suggested it. So, thank you to Devin, and Christine, and Amanda, and Lindsay, and Tamara, and Ian, and Diane. Thank you, guys.

Um, Lyme disease is really interesting, because...

Justin:

That's for me to decide.

Sydnee:

Well, that's true. You can tell me at the end if this was interesting.

Justin:

Okay.

Sydnee:

Wait until we turn off the recording.

Justin:

Okay, deal. [laughs]

Sydnee:

There's, uh, there's a little bit of ancient history of Lyme disease. But for the most part, this is a very modern disease. Um, we find the first description of what was probably Lyme disease from, uh, Reverend Doctor John Walker, who was on the island of Jura, which is also known as Deer Island, off the coast of Scotland.

Justin:

Mm-hmm.

Sydnee:

Um, I'm presuming because there's lots of deer?

Justin:

Probably.

Sydnee:

Uh, and he—

Justin:

Or no deer. Like, a notable lack of deer.

Sydnee:

[laughs] Why would you... Well, then why wouldn't it be called no deer island?

Justin:

It's hopeful. It's optimistic.

Sydnee:

Deerless.

Justin:

It's optimistic.

Sydnee:

Deerless island.

Justin:

Towards a deerful future.

Sydnee:

Uh, he observed some sort of illness that caused a rash, and people were in a lot of pain. And he described all this. And he thought it was spread by... I mean, he was, he was talking about ticks, but what he called them were worms...

Justin:

Mm-hmm.

Sydnee:

... That, that might have spread this disease. Um, which from the description, this is probably Lyme, or something like Lyme that he's talking about. You can find some older descriptions of, like, skin diseases that sorta sound like the Lyme disease rash from Germany. Um, but it's not clear if it is in fact Lyme disease. There are other tick borne illnesses they may have been talking about. We found evidence that the bacteria, that I'll tell you about, that does cause Lyme disease, um, was in a German tick from 1884. How did we...

Justin:

Wow. Why're we keeping tabs on that guy?

Sydnee:

I don't know. A well-preserved tick, that we know is German from 1884. How do you think we knew it was German? Like, did he speak?

Justin:

The lederhosen? [laughs]

Sydnee:

That's what you got?

Justin:

Yeah.

Sydnee:

I was gonna say, because of his, uh, excellent taste in beer.

Justin:

Okay, that's, that's good.

Sydnee:

[laughs]

Justin:

That's, that's celebratory. I like that.

Sydnee:

Um, we've also found a mouse from Cape Cod from 1894, who had evidence of Lyme disease. Um, we, we even found, uh, Ötzi the Iceman. Ötzi, Ötzi, the Iceman.

Justin:

Mm-hmm.

Sydnee:

Which, I, I... Like, this was just mentioned several times. Like, you know, everybody's famous iceman.

Justin:

Ötzi.

Sydnee:

Ötzi the Iceman, who is a 3,000 year old mummy, who was found to have the bacteria that causes Lyme disease. [laughs]

Justin:

Ötzi would be a really good name for our horse. Not this spelling, but Oatsy the horse, would be really, a really positive name for a horse.

Sydnee:

I'm assuming he's a human. It's the iceman.

Justin:

Yeah. Well, it just says mummy here.

Sydnee:

Is he the ice... Is it the iceman?

Justin:

Yeah.

Sydnee:

Is it Iceman?

Justin:

It's Iceman.

Sydnee:

[laughs]

Justin:

Both, both the mutant and the pilot.

Sydnee:

[laughs] Um, throughout the 1900s, we see a lot more research being done to try to figure out, um, because we see more incidences of, like, this person had arthritis, and then they also had a rash, and we don't know why. And we're trying to piece it together. We know that ticks carry some diseases.

And so, you see like different mentions of studies, and then some weird symptoms, like this person also had some weird neurological problems. Um, after the advent of penicillin in the 1940s, we see people kind of just throwing penicillin at this, like, ehh, you know. This is great. We have this new drug, let's try that. Um, but we really don't see Lyme disease, uh, dis, like, uh, described and diagnosed until the '70s. So, Justin...

Justin:

Wow, that's like a new disease basically.

Sydnee:

Yes. Yes. It's, it's very new. Especially in Sawbones terms.

Justin:

Right.

Sydnee:

It's very new. Um, so, I wanna take you back to the summer of 1975.

Justin:

Okay. I'm ready.

Sydnee:

Okay. So, let me give you a little bit of, of, like, info about... Just to give you a sense of place and time. Uh, the number one movie that year is Jaws.

Justin:

Okay.

Sydnee:

Okay? This is the year that SNL premiered.

Justin:

Oh, wow.

Sydnee:

Yeah. This is the year that, uh, Rocky Horror Picture show is first shown.

Justin:

I believe Wild Cherry was burning up the chart... West Virginia's own, Wild Cherry, was burning up the charts with Play That Funky Music White Boy.

Sydnee:

Really? I didn't know.

Justin:

It was somewhere around this time.

Sydnee:

You don't know that. Uh, uh, Love Will Keep Us Together.

Justin:

Oh yeah, yeah.

Sydnee:

Was the top song. Captain & Tennille. Um, this was also the year that in Japan they invented a little something called the VCR.

Justin:

The video cassette recorder.

Sydnee:

Yeah. Very... So, very exciting time.

Justin:

Nice.

Sydnee:

So, this is, this is where we are.

Justin:

That, uh... If you're, if you're listening and you're younger than 20, that was a machine that recorded. It's like TiVo.

Sydnee:

[laughs]

Justin:

[laughs]

Sydnee:

They were these giant tapes. You've probably seen these, these old things called cassette tapes... [laughs]

Justin:

I'm not doing this. You know what? They can read a book!

Sydnee:

[laughs] No, they're gonna read it on the internet. They don't read books.

Justin:

You can read a Wikipedia.

Sydnee:

[laughs] Um, So we're in the summer '75. And it's a hot summer.

Justin:

Oh.

Sydnee:

Yeah. And there, suddenly, in, in another place called Lyme, Connecticut...

Justin:

Mm-hmm.

Sydnee:

There starts to be these cases of arthritis, of what appears to be rheumatoid arthritis, but in kids. Lots of them. A lot more than you would expect to see, just naturally. You know, people who have rheumatoid arthritis as children. Uh, so we have this cluster of cases. More and more kids are being diagnosed. Some of them have other weird symptoms. Some of them have rashes. And parents are getting pretty panicked about it.

Justin:

Mm-hmm.

Sydnee:

As you can imagine. It's a weird disease. Um, nobody knows why they're getting it. Uh, And, and it's causing quite a stir. So, uh, researchers from the area, and then, you know, from national institute of health and all those kinds of things, kind of, uh, all collect in Lyme, to try to figure out, okay, what is going on? Where is this coming from? You know, epidemiologist. Let's study this. Let's try to... Let's try to piece this together. 'Cause clearly this is something infectious.

So, they start looking for a common source. They study water sources and air sources. They try to find environmental toxins. They interview the kids and the families, and they start to see some similarities. The cases all started... The symptoms all started around the late spring to summer time. Uh, all these kids had been playing outside in wooded areas, which isn't like, shocking. Like, you know?

Justin:

Yeah.

Sydnee:

They're kids. It's the '70s. We don't, we don't have VCR yet. Like, we just invented it.

Justin:

[laughs]

Sydnee:

What else are they doing? [laughs]

Justin:

Right.

Sydnee:

You know, of course they're playing outside. Like, there's nothing, there's nothing to do inside. Um, so, the kids are playing outside in wooded areas. And they start asking them about contact with, like, bugs, and ticks, and things like that. And they find that a lot of the kids say, you know, I know I was... I did have a tick on me. Or their parents say, you know, I pulled a tick off of them. Um, and quite a few of them start reporting a rash, that they describe is fairly similar.

Justin:

Mm-hmm.

Sydnee:

So they started thinking... These researchers, researchers started thinking, you know what? This could be the tick. Specifically a deer tick. Very certain kind of ticks. It's different than your dog ticks. So don't get freaked out about the ticks on your dog. This is a very different tick.

So they start studying, could it be these ticks? Um, And there was a researcher, named Doctor Willy Burgdorfer, who, luckily, fortuitously, had spent part of his career studying, um, Rocky Mountain spotted fever, which is another illness that's transmitted by ticks.

Justin:

Mm-hmm.

Sydnee:

Uh, he had also spent some time in Europe, uh, studying a tick borne relapsing fever. He'd also, as he notes when you read his, like, memoirs, like, had gone to a conference in 1949 that had proposed ticks like the deer tick as possibly being able to transmit infection.

Justin:

So, uh, answer me something, Syd, that I'm... You may not have the answer, but just to give me some idea. Like, how does this happen? How does a, how does a disease, um, just sorta go, um... I mean, is it literally new? Or I mean, it's obviously not literally new, because, like the iceman had it. So, like how did, how does a disease... This is just people not connecting the dots, or do you think Lyme disease changed in some way that made it more prevalent, or do you think it's just migration of the disease, you know, to, to a certain area or what? How does this happen?

Sydnee:

I mean, certainly the disease migrates, that's true. And certainly we are, we become better at recognizing it. You know, part of it is that, this was probably described for many years before we just, we called it Lyme disease.

But, uh, the bigger thing with, with anything like this, that's, um, like, tick borne, or any kind of insect borne, or things that, um, probably had created their own little life cycles with mammals other than humans, and insects out in the woods, it's really as we penetrate further into those areas...

Justin:

Mm-hmm.

Sydnee:

... That you start to see it spread to humans.

Justin:

Hmm.

Sydnee:

Um, so, this probably had to do with the fact that more and more people were living there. You know, after the Industrial Revolution, there was more deforestation, and more people were spending more time. You know, closer to nature.

Justin:

There's also more of a push to get out there, you know. Like, that became more fashionable, right?

Sydnee:

Yes.

Justin:

Like, getting out into the woods, And—

Sydnee:

Yes. Yes. So, as you begin to see people moving into these areas, and more and more—

Justin:

And before the '70s obviously, but still.

Sydnee:

Yeah. More, more and more human infringement on these kinds of areas. That's when you see us get these diseases. And this isn't unique to Lyme disease or tick borne illnesses. This is true for a lot of different illnesses. You could, you know, date the moment that they crossed from animals to human, is when humans went where the animals are essentially.

Justin:

Okay.

Sydnee:

Um, So if we would just, I don't know, stay in our concrete towers, it...
[laughs]

Justin:

So, what's, what's it caused by?

Sydnee:

You know, like we do in West Virginia.

Justin:

Right.

Sydnee:

[laughs]

Justin:

What's it, uh... What's it caused by, Syd?

Sydnee:

Okay. So, uh, with the help of Dr. Willy Burgdorfer, they were able to isolate the Organism that causes Lyme disease. It is called a Borrelia Burgdorferi. As you may have guessed, Burgdorferi was not, like, just a crazy happenstance. It was named for Doctor Willy Burgdorfer.

Justin:

Right.

Sydnee:

Yeah. That would be a really crazy coincidence.

Justin:

That would be crazy coincidence.

Sydnee:

[laughs]

Justin:

Your name is what? Excuse me, sir?

Sydnee:

[laughs] Borrelia, it was already, uh, known. It's, it's a type of, uh, spirochete bacteria. Um—

Justin:

Which is halfway between spiral and parakeet, as everybody knows.

Sydnee:

[laughs] No.

Justin:

Accurate.

Sydnee:

No.

Justin:

Accurate insight.

Sydnee:

It, It means, if you look up, like, what—

Justin:

Prescient.

Sydnee:

... What spirochetes look like.

Justin:

Germaine.

Sydnee:

First of all, other kinds of spirochetes [laughs] not Borrelli. The other kinds.

Justin:

Can you imagine them? They're horrifying. Those poor things. The body of a bird. The head of a spiral. God's greatest mistake.

Sydnee:

[laughs]

Justin:

Spirochetes.

Sydnee:

And it gives you Lyme disease. [laughs]

Justin:

It gives you Lyme disease if he looks at you.

Sydnee:

And there's another kind of spirochete that we got, syphilis.

Justin:

That's... Now, that's spooky! [laughs]

Sydnee:

[laughs]

Justin:

Like, you wanna talk spooky? [laughing]

Sydnee:

It is [laughs]

Justin:

The spirochete that's spooky. Somebody draw me spirochetes, and get tattoo.

Sydnee:

If you want to... If you want a tattoo of spirochetes, there are many pictures on the internet. You can Google them. And they're very pretty. They're gorgeous.

Justin:

I bet they're not gonna look what I need 'em to look like.

Sydnee:

No.

Justin:

No. They're gonna not gonna look like a para—

Sydnee:

No, they're not gonna look like that. Oh, that's true.

Justin:

I need a real spirochete.

Sydnee:

Okay. So that's... You have a challenge. This is your Halloween challenge.

Justin:

Spoopy Halloween challenge.

Sydnee:

Leveled at you by Sawbones. Please draw Justin a para—with a parakeet with the head of a spiral.

Justin:

A spiral. Right.

Sydnee:

[laughs] Or perhaps just a spiral parakeet?

Justin:

A spi—listen, if you can figure that one out [laughs], please let me know M.C. Escher.

Sydnee:

[laughs]

Justin:

M.C. Escher Junior out there listening.

Sydnee:

Um, so they... Seriously though, look at pictures spirochetes. If you see, like, dark field microscopy pictures, they're just beautiful. But they look like little spirals.

Justin:

You're such a nerd.

Sydnee:

Um, I am. It's a bacteria. [laughs] Uh, we figured, you know... We figured out what it was. We were, we developed testing for it by 1984. And we, it became a reportable disease by 1987. So, since then, we've been keeping track of where it is, and how much it is, and, and all that kind of thing.

Um, it is, as I alluded to, it is carried by a tick. The deer tick. Which is *Ixodes scapularis*. It's a hard tick. That's a very important distinction in ticks. Soft ticks and hard ticks.

Justin:

Okay.

Sydnee:

I think, 'cause they're hard. I don't touch them. When I see them, I'm gonna assume it's hard. It looks hard. Um, on the West Coast, this can be carried by *Ixodes pacificus*, which is slightly different. But we don't really see it much on the West Coast. It's a mainly New England disease. It is spreading South. We're seeing it more and more. Like, in our area, there were actually four more counties in West Virginia were added to the list of endemic counties for Lyme disease...

Justin:

Mm-hmm.

Sydnee:

... Um, in August of this year. So very recently. It's still not in our county.

Justin:

Oh.

Sydnee:

We still don't have it in our county.

Justin:

Thank goodness.

Sydnee:

Yeah. But, um, but it is spreading further South, probably as the animals move.

Justin:

But you know what? That doesn't mean so much. Because I bet a lot of people who get ticks are out in another count—like, they would be traveling anyway, right?

Sydnee:

Exactly.

Justin:

Like, when I got a tick in my head, I was in, uh, Lawrence County, Ohio. I had—at Lake Vesuvius, camping.

Sydnee:

[laughs] Exactly. Exactly. Which is funny.

Justin:

Did I ever tell you that story? Because I thought—

Sydnee:

It's funny to think about you out camping.

Justin:

Yeah.

Sydnee:

I mean, I love you.

Justin:

I mean it's—

Sydnee:

But you're not exactly, like, Justin, the outdoorsman.

Justin:

I mean, it was at a campground, right? Like, we had some of the luxuries were home electric griddle, whatnot.

Sydnee:

Was that when we went with Travis?

Justin:

No, no, no.

Sydnee:

Oh.

Justin:

This is when I was little. And when I got home, I was watching cartoons, and I thought I had some marshmallow in my hair, and I picked at it for an hour,

before I finally just yanked it out and realized it was a tick! How's your day?
Bad.

Sydnee:

That—

Justin:

I told that story on another podcast before maybe this podcast. Please let me know, or don't. I don't... It doesn't really matter to me. But, uh, it was *the* worst thing. I still remember it with perfect crystal clarity. It was a nightmare.

Sydnee:

That would be... That would be awful. Um, I've never had a tick, and I'm glad.

Justin:

Yeah. It's the pits.

Sydnee:

Do, do you remember the time we went camping with Travis, and we had to dump out all our beer?

Justin:

Yeah. Now that's spooky.

Sydnee:

That we—we got caught by Park Rangers.

Justin:

Park Rangers forced us to dump out all our beer.

Sydnee:

That was awful. It's was a sad day. Um—

Justin:

Do you know what's saddest about that? That actually happened before we got there, but the, the, just the story of it was so...

Sydnee:

[laughs]

Justin:

... so visceral to you, that you have... Like, it is formed itself in your mind.

Sydnee:

I feel like I was there.

Justin:

Like, you feel like you were there.

Sydnee:

Like, Travis told us about it when we got there, and I felt like his pain.

Justin:

And you're still... You're still living with the pain.

Sydnee:

Like, I could see it. I could see that, it happening. Um, so, so how does the... How does the bacteria get from the tick into you? Well, that's pretty obvious, right?

Justin:

Yeah.

Sydnee:

The tick bites you and eats you.

Justin:

It wants to suck your blood.

Sydnee:

Sucks your blood. Exactly. So, the, the bacteria lives in the gut of the tick. And when it attaches to you, and starts feasting on your blood, the bacteria has to make its way—

Justin:

Feasting, eh?

Sydnee:

Yeah.

Justin:

Not just eating?

Sydnee:

No, feasting.

Justin:

Feasting.

Sydnee:

It's... It is how—

Justin:

Drink deep, little friend.

Sydnee:

[laughs] Uh, the bacteria has to migrate from the gut of the tick to its salivary glands, so it can then, like, get into the little wound that it's created.

Justin:

Mm-hmm.

Sydnee:

You know, just like, stick it down. Like, like, spit it with the spit and the bacterium kinda—

Justin:

This is the worst.

Sydnee:

I know. I know.

Justin:

Stop it.

Sydnee:

This takes... By the way, this process, the bacteria moving and then getting from the salivary glands into you, takes at least 36 hours. Maybe more. Um, usually more. And this is probably why it's a lot easier for the tick to give this to, like, deer, and mice, and other mammals.

Justin:

Because they don't give a crap.

Sydnee:

Because, yeah. Because... Well, they don't have, like, opposable thumbs.
[laughs]

Justin:

Wait, what are they gonna do?

Sydnee:

... For keeping the tick off as easily. They're not freaked out by them like we are.

Justin:

They can't—they can't open the jar of Vaseline to get rid of it.

Sydnee:

But, but this is... This is good for you to know. Because if the tick has not been on you for at least 36 hours, it can't give you anything. There's no way it gave you anything. It has to be there that long. Um, and if you're not sure if the tick's been on you that long, engorgement is an important point, so I thought I would tell you a little bit about [laughs] tick engorgement.

Justin:

Oh great. This is how I was hoping to spend my Friday.

Sydnee:

Um, now if you have never seen a tick on you, or certainly an engorged tick on you, um, again, you can find... 'Cause I hadn't. I've never had a, a tick on me.

Justin:

Mm-hmm.

Sydnee:

Um, I've actually never tick, picked a tick off of a patient. They usually pick them off before they come in, and then tell me about it. Um, but if you, uh, if you see a tick that's engorged, you'll know right away. It looks like... Have you ever felt like a blood blister? Like a little blister that's just...?

Justin:

Yes.

Sydnee:

That's what they look. They look like huge and swollen and red. And, I mean, you know. Like, when you see the little teeny ticks, especially, I didn't mention this, the nymphs form of the tick. Like, the younger form of the tick is the one that's more likely to spread this. Simply because they're tiny. They're out the side of a, size of a poppy seed. They're very small. So, you can miss them. It looks like a freckle. You wouldn't even know they were on you. You could be covered in them right now.

Justin:

You are the worst.

Sydnee:

[laughs] And they would look like little freckles. And you wouldn't know for sure until you, like, scratched them and they came off.

Justin:

Can we please play billing department? I'll give you anything.

Sydnee:

But anyway, if they get engorged, they look giant, and red, and pulsating, and nasty.

Justin:

Okay. I'm going. I'm going with or without you.

Sydnee:

At that point, you, you—

[theme music plays]

[ad break]

Justin:

Okay. I've girded my psyche to hear more about Lyme disease. I would thank you to steer clear of engorgement and engorgement related topics, madame.

Sydnee:

Okay. Okay.

Justin:

And maybe tell me how I know if I have Lyme disease. Which by the way, 100% sure I have. Now, thank you. How do I know for sure, which I do?

Sydnee:

Okay. Okay. So, the, the... We'll just go, move past the tick biting you, and transmitting the bacteria to you.

Justin:

Oh, thank you.

Sydnee:

And anything that—that's already happened. Um, so, uh, there are three stages of Lyme Disease. The first stage, early localized disease, is what, like, if you've ever heard anything about Lyme disease, you've probably about a rash. And it is classically called the "bullseye" rash. Because it looks... It's supposed to look like a bullseye. Um, it's also called erythema migrans.

Uh, but that is the most common, um... That is the thing that we can tell you, for sure, you have Lyme disease if we see it. It only happens in about 80% of patients. So, there are still people who have Lyme disease who don't get that rash.

Justin:

Mm-hmm.

Sydnee:

Um, and the trickier thing is that, only about 19% of people who get the rash, it really looks like the classic textbook medical school bullseye rash that they tell us about. So, sometimes it can just look like a big red spot, a big reddish blue spot. You can even have multiple of them. Sometimes it can blister.

Um, but the point is, there's a big rash. It has to be five centimeters or greater to qualify. So, it's pretty big. Um, and they... And it expands. And the only other symptoms you're going to get, other than the rash, which by the way isn't like itchy or painful or anything, it's just, there are like flu like symptoms. So, like, really nonspecific some, you know, fevers, and chills, and body aches, and that kinda thing. You know, nothing that you would ever... You know, without the rash, you would never care what these symptoms and let's say, Lyme disease, especially here.

I would say, with the... You got flu, you got a virus. Whatever. Um, if you don't catch it in this early stage and treat it, you're going to move on to early disseminated disease. Uh, which could mean more rashes. It could mean more body aches. You could start to get some joint pains. Um, and you can get some more serious effects at this point.

This is why Lyme disease is a bigger deal, is because then you can start getting like inflammation of your heart called carditis. It can cause, like, abnormal heart rhythms. And you can get neurological effects. Um, even things like meningitis. Uh, sometimes, just, like, neuropathies, like numbness tingling, or like weakness somewhere, but you can actually get meningitis from Lyme disease.

Justin:

I gotta say, and I know there's a third stage, but like, at, at this point especially, this sounds like it would be a monster to try to diagnose. This is a crazy constellation of symptoms.

Sydnee:

It is, it is very hard to diagnose. Uh, I'll definitely mention that. It is a very difficult thing, especially if you didn't have the rash. And if you—

Justin:

Oh, you said that in the notes. Wow, I just put that together myself.

Sydnee:

No, it is. It's very hard to diagnose.

Justin:

Genius junior doctor.

Sydnee:

You've been listening to me, I think.

Justin:

Yeah.

Sydnee:

You've been paying attention.

Justin:

Yeah. Yeah.

Sydnee:

Good job.

Justin:

Well, you're sitting really close to me. And I love you a lot.

Sydnee:

And I talk really loud. And a lot. [laughs]

Justin:

Yeah. And I got the headphones on. So it's like, yeah.

Sydnee:

So, you're right. It is really hard to diagnose. Especially, you know, if you have the rash, and you have the history of tick exposure, much easier. You know, that's a slam dunk. Especially if you live in an area like New England. You'd be much more likely to notice, you know, to recognize this and treat it.

If you're living here, in this county, in West Virginia, where it's not endemic, you'd be much less likely. And certainly in, in southern states or out West, you wouldn't ever think about this. And you probably shouldn't, by the way. Don't.

Justin:

Mm-hmm.

Sydnee:

you know? Um, but at this point, you're gonna be sick enough that you're gonna be in the hospital, and we may be testing you for stranger things, hopefully. Um, but yeah. It wouldn't be obvious if this is all you had.

If it... If you were still not diagnosed and treated, it can progress to the late stage, which is when you get a lot of the, um, more severe arthritis, which is probably what these kids in 1975 had. Um Because they hadn't been treated, 'cause nobody knew what they had. Um and you can get some more severe neurological problems, like permanent peripheral neuropathies, meaning like, numbness and tingling...

Justin:

Mm-hmm.

Sydnee:

... In your hands or feet. Uh, you can get, um, changes in your personality, stuff got encephalopathy. You know, some, some permanent stuff can begin to happen. Not all of it is permanent. Even if you treat it in this late stage, most of the time all your symptoms will go away.

Justin:

Mm-hmm.

Sydnee:

But there, but there are some things, that if it progresses this far, um, may stick with you. So, uh, one important thing... So those are the three stages of Lyme disease itself. Now, hopefully you catch it the earlier the better, and you treat with antibiotics, which I'll tell you about. It's really easy to treat. Um, and it goes away. That's the hopeful thing.

What can happen is that, if it progresses long enough before somebody catches it. Like, let's say, you don't remember you were bitten by a tick, and you never had the rash, so nobody really knows what they're looking for. Um, you can have something called post treatment Lyme Disease syndrome. Which is, which are patients who have been diagnosed and treated appropriately. They already had the right course of antibiotics. But they persist to have symptoms longer than six months.

Justin:

Mm-hmm.

Sydnee:

Um, because you expect all of these things to resolve by six months once you've been treated.

Justin:

Mm-hmm.

Sydnee:

Um, probably a lot sooner if you've been treated, you know, early on.

Justin:

Is that common?

Sydnee:

What? Post, post treatment?

Justin:

Yeah.

Sydnee:

No, it's not common. It's uncommon. But some patients have it. And the later you were diagnosed and treated, the more likely you are to, to develop some long term arthritis, and some, um, like I said, some neuropathies neuropathic pain. Um, this is, this is very rare, but it is a huge impact on the lives of patients who have it.

Justin:

Mm-hmm.

Sydnee:

Because, you know, they get the antibiotics, and they expect to feel better, and they wait and they wait and they wait. And they do feel better, but there's still some things hanging around, and it can be really tricky at that point to say, like, is, did you get it again? Is there something new? Is this a—

Justin:

Lyme disease too?

Sydnee:

Yeah. Is it... 'Cause You can get it again.

Justin:

Sure.

Sydnee:

You know, just 'cause you had Lyme's disease once, and got it treated, doesn't mean you can't get it again.

Justin:

Um, you mentioned it's really hard to diagnose. Is there sort of, sort of test that you can do to, like, just grab, grab some blood and test it for Lyme disease?

Sydnee:

There, there are... There are many tests you can do. Um, there is a very specific, if you go to the Centers for Disease Control website, or the Infectious Disease Society of America website, which is, by the way, where a lot of this information comes from that I'm, that I'm giving you. From the IDSA, and from the CDC.

Um, if you have questions about Lyme disease, I would refer to one of those two organizations, especially the CDC. 'Cause it's really, uh, user friendly. They have stuff that is meant for me as a physician to read, and then they have lots of stuff that's meant for people without any medical background to read, you know?

Justin:

Mm-hmm.

Sydnee:

Um, but they will tell you, there are two tests that they recommend. And you do them in a specific order. It's, it's very, uh, precise, the way we do the testing. Uh, the first test looks for certain antibodies. If this test is negative, you're good to go. You don't have Lyme disease.

If this test comes back positive, or sometimes it can be equivocal, then there's a follow up test that you can do that's a little more, uh, specific to try to figure out if you really do have Lyme disease. Even when done in the right order, and when the... Because you have... There are certain time frames you have to do them. Even with all that, you can still get false positives on these tests.

So, as you can imagine, that makes it really tricky. Because now a test has come back positive for Lyme disease, uh, you know, maybe a second test came back positive for Lyme disease. So, you, you think maybe this person has Lyme disease, you, they still might be wrong.

Um, it's good to know that, if you have the rash and a definite history of a tick exposure, especially if you know it's been more than 36 hours that the tick, was on there...

Justin:

Mm-hmm.

Sydnee:

... You don't need to do all this. You just treat them.

Justin:

Okay.

Sydnee:

Yeah, you don't do any of this testing if you have those two things.

Justin:

And what's the treatment?

Sydnee:

Uh, the treatment is pretty easy. It's, it's just antibiotics. Very commonly accept... You know, commonly available antibiotics. Doxycycline is a great one, but there's lots of other alternatives. Um, it can be 14 up to 28 days, depending on what stage you're in and what symptoms you have.

If you're more severely ill, if you're into like the heart effects or the neurological effects, the late stages, then you may be sick enough to actually need some IV antibiotics. So, there's another antibiotic, ceftriaxone we use. Again, we're talking about 14 to 28 days courses of treatment. That would be the most you would need. Um, and you may or may not have to be hospitalized for part of this. Again, it kind of depends on how sick you are.

Justin:

But I imagine the best course would actually just be not to get Lyme disease.

Sydnee:

Absolutely. So the best thing to do is prevention. Don't get tick bites. Um, if possible, stay away from ticks. [laughs] That's a good life lesson.

Justin:

Oh, great. If you see one coming, just like, not here, Mr.

Sydnee:

Run. Like, they don't move fast. They're very small.

Justin:

Don't go outside. Well, you're not there anyway. That's their domain.

Sydnee:

[laughs] So try to stay away from tick concentrated areas. A lot of people aren't gonna do that. Um, so when you do go into areas where there are ticks, especially the deer tick, um, you want to wear, like, light colored long sleeved and long pants, you know, clothes. That kind of thing to protect your skin. Uh, deep is useful, uh, as it tick repellent. Um, if you're not going to do all that, you wanna do a tick check within 36 hours of coming in. So, you've been outside. You've been around ticks. Have somebody or, you know—

Justin:

Wait a minute. But wait. What if you were out for more than 36 hours? What if you were camping?

Sydnee:

Ah, you should probably do within 36 hours of when you've been outside.

Justin:

Yeah.

Sydnee:

Yeah. So, maybe take checks while you're camping.

Justin:

Take checks counseling.

Sydnee:

It could be very romantic, you know?

Justin:

Yeah, sure.

Sydnee:

Just out there, in your tent alone, stripped down, and check each other for ticks.

Justin:

Explore your lover's body.

Sydnee:

[laughs] For ticks.

Justin:

For ticks.

Sydnee:

And you really have to look closely, 'cause, like I said, the nymphs are like poppy seed size.

Justin:

I'm not doing this with you again.

Sydnee:

[laughs]

Justin:

Move on.

Sydnee:

Um, another thing that can be helpful is, if you've been outside for a short period of time, you can bathe within two hours of coming in. That's actually been shown to reduce the risk of getting Lyme disease.

Justin:

Oh.

Sydnee:

Um, watch out for your pets. You can't get Lyme disease from your pet. But they could carry in a tick.

Justin:

Right.

Sydnee:

That has Lyme disease, and then the tick gets on you.

Justin:

Sure.

Sydnee:

So, you know, if your ticks have been outside in areas where there are... Or if your pets have been outside in areas with deer ticks, think about that. Interestingly, there was a vaccine briefly.

Justin:

Oh, great. Cool. End of episode. [laughs]

Sydnee:

Called Lymerix. No [laughs] No, 'cause there's not now. It was called Lymerix. It was, uh... It came out in 1998. Um, it was really cool the way it worked. It actually, it, it attacked this specific osprey protein that is mainly produced, um, when the bacteria is inside the, uh, tick. So, it's produced by the bacteria inside the tick. The, the vaccine makes you make antibodies against it.

Justin:

Mm-hmm.

Sydnee:

So, you make antibodies that target that protein.

Justin:

Hmm.

Sydnee:

Um, I think I misspoke there. So, does that make sense?

Justin:

Yeah.

Sydnee:

You make antibodies. They target the protein that is inside the tick. So, they are probably mainly attacking the ticks bacteria while it's attached to you.

Justin:

Hmm.

Sydnee:

Which is crazy.

Justin:

It is crazy.

Sydnee:

Also, after it's inside your body. But mainly while it's attached to you. Anyway, it was a very cool vaccine. Um, about 78% effective, which is not too bad. Um, but there was a lot of worry about adverse effects. Um, there

was a lot of media concern. There was some, um, maybe a little bit of undue panic.

Uh, it wasn't a perfect vaccine. And there probably were some people who were gonna have some adverse reactions to it. Ultimately, if people had used it, and if they hadn't pulled it from the market, and if we had years of data collected on it, we may have found that it was a good vaccine that was worthwhile. I don't really know. Because it was pulled from the market in 2002. Mainly because Glaxo SmithKline wasn't making enough money off of it.

Um, but at that point, uh, there wasn't enough, like, of a database to tell you, was it really, you know, worth all the panic that it caused? I don't know. I don't know what to tell you. It may have been a great vaccine. It's not around anymore.

Justin:

Got it.

Sydnee:

Um, there is controversy. And I know everybody who's been listening to this episode is probably... Not everybody. But there are a lot of people listening, who are waiting for us to talk about the controversy that has to do with Lyme disease.

Justin:

Okay.

Sydnee:

Um, and that's with something, Justin—

Justin:

We, we didn't, as you can tell from the time indicator on your podcast player [laughs]

Sydnee:

Yeah. I don't want to belabor this point. Um, because our podcast is supposed to entertain you, hopefully inform you a little bit, and make you happy, and make you feel good [laughs] And my job is not to lecture you, or to, um... I'm not your doctor. I'm your friend. [laughs] Go talk to your doctor if you have real concerns about these issues. If you have real questions.

Um, but I am going to give you the information that, again, is available widely from the Centers for Disease Control, from the Infectious Disease Society of America, and also from, you know, the American Academy of Pediatrics, and the American Academy of Neurology.

Justin:

You're talking around this a little bit. You need to... What is, what is it? What are you talking about?

Sydnee:

So, there is, there is a term that you will hear called Chronic Lyme disease. Um, this, this is a term used to describe people who continue to have symptoms associated with Lyme disease longer than the six month timeframe that we would expect, um, after they've been treated.

Justin:

So, we know that this happens though, right?

Sydnee:

Right. This, this is... This—

Justin:

Post treatment Lyme disease syndrome?

Sydnee:

Yes. This is most likely... Most of these patients have post treatment Lyme disease syndrome. Um, the, the controversy comes in with, uh, do they still have an active infection? Now, the accepted medical position, um, by all major medical organizations is that, no, there is no active infection. And why does that matter? Because then that means you don't need more antibiotics.

You know, there... If, if these are just the sequela that are left over after you've had an infection and been treated, not to minimize them, they're still severe, but you don't need to treat them with more antibiotics.

Justin:

What does sequela mean, super quick?

Sydnee:

Uh, just like the, the effects.

Justin:

Okay.

Sydnee:

The, the after effects, kind of, thing. Um, but if you do have an active infection, obviously we would need to give you more antibiotics. That is where the, the issue lies. Um, there are, uh, physicians who are proponents of continuing to treat Lyme disease as long as any symptoms remain. Um, and these symptoms can be incredibly vague. They can be muscle aches and pains. They can be fatigue, um, you know, headaches. Things that, that may be attributable to a million other diseases.

Um, and so, there are patients who end up on, quite literally, years of IV antibiotics. Uh, this position is not held by any, like I said, major medical organization. Um, what the Centers for Disease Control, or the IDSA will tell you is that, likely these patients either have post treatment Lyme disease syndrome, which is a very real entity, or they have something else that just is, we're just lumping in with Lyme disease.

And we need to do a little more digging and talk with these patients more and take care of them, 'cause they have very real symptoms, that probably aren't going to be addressed by long term antibiotics. And studies, again and again, show that long term antibiotics are no benefit over placebo, um, in these patients, so, um, if you are, if you are questioning whether or not, you know, you still have symptoms, you, you've been diagnosed with Lyme disease, you've been treated and you need to, and, and you still have symptoms, and you're wondering what to do next, I would go, uh, talk with your physician about that, about this.

Ask them what the safest thing. You know, what the best thing to do is. What are the recommendations? What are the guidelines? Uh, there are negative side effects from, obviously from getting long term IV Antibiotics. Depending on what they choose, it can hurt your, you know, your liver, your kidneys. Not always. But that this can happen. And also, um, when you have an IV access, an intravenous access for a long time, as you would need if you were going to get extended antibiotics for anything. Anything that we treat with extended antibiotics. That's a source of infection.

So, you can get infections in your skin, or at the site, or in your bloodstream, which can put you at risk for a lot of other problems. So, so if you have had Lyme disease, and you've been treated, and you think that, uh, you may still have symptoms, or you have concerns, please go speak with your physician about it. Don't just trust the internet.

Justin:

And if your physician says you have chronic Lyme disease, you may want to get a second opinion, right? Because it sounds like he might be an outlier.

Sydnee:

I, I think that I would, I would ask for a second opinion at that point too. Um, because yes. That, that is not the accepted medical position at this point. But again, I would encourage you, this is... And we say this a lot. And this is true not just for medical things. This is true for, like, anything, right? Don't just trust the internet. I'm sorry, internet.

But, you know, for every time you, you helped me out, you let me down 10 more times [laughs] So, don't just Google this and take what you see. Because there's a lot of misinformation out there. A lot of things that, um, I wouldn't just trust. I would go. Speak with your physician. If you're unsure, get a second opinion. Um, again, don't, don't listen to me even. Don't trust. I'm just another voice on the internet, right?

Justin:

Right.

Sydnee:

Go, go talk to your doctor about this issue.

Justin:

Uh, Thank you to the Maximum Fun Network for having us as part of their program. Hey, uh, we, uh, did a guest spot on the Oh No Ross and Carrie show. Thank you to, uh, Ross and Carrie for, for handling our show, uh, last week. I really enjoyed their episode. And we did an episode of their show where we went to the Mystery Hole in, uh, West Virginia. And it's a popular tourist trap. And we investigated the paranormal claims there. Uh, And it was a lot of fun.

Sydnee:

And it was super cool, and it was a lot of fun. So thanks Ross and Carrie for letting us do that. Do your show.

Justin:

You search on iTunes or what have you. You can, you can find that. Uh, also wanted to tell you that, um, aunt cool, Uh, Sydnee's sister, Riley, uh, Frequent Podcast guest host, is doing a fundraiser for her, uh, speech and debate team. This is the next generation of West Virginia Podcasting there.

Sydnee:

[laughs] It starts with speech and debate.

Justin:

It starts with speech and debate. Uh, she's doing a fundraiser to try to help raise money for her, for her team. Um, if you'd like to donate to that, even a couple bucks, they really mean the world, world to her. Uh, you can find that on our Facebook page. Just search for, uh... Search for, you know, Sawbones on Facebook, and you'll, and scroll, and you'll find it.

Sydnee:

Yeah.

Justin:

You'll see a link right there. I really appreciate that. Thank you so much, in advance, if you're able to kick in a couple bucks. And, uh, thanks to Taxpayer, for letting us use their song, Medicines as the intro song. Medicines. And that's gonna do it for us for this episode.

Sydnee:

Yeah, thank you guys for listening.

Justin:

Sorry. Today's episode was a little bit late this week, you know?

Sydnee:

Yeah.

Justin:

Life, right? Am I right?

Sydnee:

Yeah. [laughs] We're just out there dodging ticks.

Justin:

Just out there, dodging ticks. And until next week. Uh, my name is Justin McElroy.

Sydnee:

I'm Sydnee McElroy.

Justin:

And as always, don't draw a hole in your head.

[theme music plays]

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