

Sawbones 109: Roundworm

Published on October 22, 2015
Listen here at themcelroy.family

Intro (Clint McElroy):

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:

How are you doing, Syd?

Sydnee:

I'm good. Justin, how, how are you feeling? You were supposed to have a big appointment today?

Justin:

Yeah, I was supposed to get a crown. I got a fake replacement tooth on there right now, but, I'm, uh... I was supposed to get a crown, but I... good news. Well, I mean, depending on your perspective, but good news my tooth wasn't done.

Sydnee:

Is that good news? Because now you still have whatever that fake tooth is, that fake...

Justin:

Mm-hmm. That upsetting fake tooth. No, I mean, it's good.

Sydnee:

Yeah. And you can't, you can't chew very well very well with. You keep getting stuff stuck back there. It's been a... it's really been traumatizing for me, honestly, as the one that has to deal with it.

Justin:

Oh, I'm sorry about the impact. On you. Uh, that's my primary concern. No, I mean, I'm... I guess I'm a little sad to not have a cool new tooth, but, uh, the nice thing about it is it didn't work. You know, nobody likes that. So it was kind of like a brief reprieve.

Sydnee:

Yeah. No, I understand that completely.

Justin:

Uh-huh. I bet you do. Uh, of course, you haven't been in 10 years. Um, you know, it was kind of like...

Sydnee:

I'm not advocating that. I'm not saying that's a choice anyone else should make.

Justin:

Uh...

Sydnee:

Please go to your dentist, everyone. Go now.

Justin:

It was kind of a nice reprieve, you know, 'cause now I get to spend a lovely autumnal afternoon, here in front of the, uh, in the Sawbones studios, just talking to my wife about...

Sydnee:

Uh, worms that crawl out of your butt?

Justin:

Okay. Well, I might call the dentist and see if they can still squeeze me in. Maybe they can make a little...

Sydnee:

Oh, come on.

Justin:

... a little room.

Sydnee:

It could be fun. This could be like a lovely couple's adventure through the world of worms and intestines...

Justin:

Okay.

Sydnee:

... and intestinal worms.

Justin:

As the, uh, fish... As the, the ill-fated fish once said, "I will bite on this worm."

Sydnee:

[laughs]

Justin:

Sydnee, what are you talking about?

Sydnee:

Well, Justin, uh, worms have probably been one of the most requested topics for Sawbones to cover. We've covered... We've dabbled in parasitic diseases...

Justin:

Mm-hmm.

Sydnee:

... but I think people are fascinated by worms—

Justin:

I remember the Guinea worm.

Sydnee:

Mm-hmm.

Justin:

That was unpleasant.

Sydnee:

Yes, it was, it was.

Justin:

Hugely.

Sydnee:

Um, but it's okay, because Jimmy Carter is gonna eradicate it.

Justin:

Jimmy Carter. He's in a race against time with Guinea worms.

Sydnee:

That's what he said. He said the last Guinea worm is gonna die before him and I believe him.

Justin:

Yep.

Sydnee:

But we're not gonna talk about Guinea worms, 'cause we already did that.

Justin:

Yep.

Sydnee:

Um, there are a lot of worms, first of all, to talk about. Uh, there... I was going to tell you all about roundworms, 'cause there have been lots of people who have requested roundworms. Uh, let me thank some of them, first. Clifford, Emily, Isabelle, Matthew, Dave, Don, Lindsay, Nicholas, Jonathan, and Jennifer.

Justin:

Mm-hmm.

Sydnee:

They have all requested roundworms, um, also known as nematodes, but there are a lot of them that can cause disease.

Justin:

Oh, great.

Sydnee:

So, I'm gonna tell you— Yes. I'm gonna tell you a little bit about nematodes and then I'm gonna... I think that this could be like a whole multi episode arc about worms.

Justin:

That crawl.

Sydnee:

Out of your butt.

Justin:

Great. Okay. Excellent.

Sydnee:

How do you feel about that?

Justin:

Stoked. To put it in one word. Just stoked. All right. Let's get it, let's get it going...

Sydnee:

All right. Let's—

Justin:

... because then it's closer to not going.

Sydnee:

[laughs] Let's start... Let's just start with roundworms are also called nematodes. That's probably the better name.

Justin:

Or battletodes.

Sydnee:

No, they're not, [laughs] they're not battletodes.

Justin:

No, okay.

Sydnee:

No.

Justin:

Agree to disagree.

Sydnee:

Uh, there's a whole phylum Nematoda, and they're different from flat worms, because, well, I mean they're, like, they're tubular.

Justin:

Right, not flat.

Sydnee:

Like round. Um, and they have like a tubular digestive system and they've got a hole at both ends and about half of them are parasitic. And there are lots of nematodes, lots and lots of nematodes. There may be up to, in one hectare of soil there can be up to 1.2 billion nematodes, various species.

There are probably up to a million different species of nematodes. They occupy every habitat from mountaintops to ocean floors. They are beneath the earth surface. Um, they are all over. There are, there are ones that, that are parasitic to almost every plant and animal on earth. They make up 90% of animals on the ocean floor.

Justin:

Wow.

Sydnee:

Just nematodes. And they are 80% of all individual animals on earth.

Justin:

That is a lot of nematodes.

Sydnee:

So they're everywhere.

Justin:

Yeah.

Sydnee:

These worms, they're worms— We're still talking about worms by the way.

Justin:

Somewhat unsettling.

Sydnee:

Yes. Um, it's funny 'cause you read there are nematologists who study nematodes and there's one, Nathan Cobb, who talked about that basically, if you removed all other living things from earth, you would have kind of this film of nematodes that you could, like, see that, like, the exoskeleton, endoskel— However you wanna call it, of every structure in plants and animal and everything on earth made out of nematodes that would help you identify all of the creatures that used to be here.

Justin:

Wow. That's a lot of nematodes.

Sydnee:

Yes.

Justin:

I mean, it's just a whole lot. Like...

Sydnee:

Right.

Justin:

Probably at least 80,000 minimum, I would think.

Sydnee:

No. I mean like way more than that.

Justin:

Oh, man. 85,000, 90,000, like a lot of nematodes.

Sydnee:

So... Yeah. Well, you keep working on your estimation skills, I think they're poor.

Justin:

Okay. Um, is that a medical diagnosis or you just think, generally speaking.

Sydnee:

No, I don't think you... Yeah. I think just generally.

Justin:

Okay.

Sydnee:

Uh, I think that's like a math teacher comment.

Justin:

Oh. Fair enough. Yeah. Okay. I... You know, you got to know your limits, I guess.

Sydnee:

Um, now, like I said, there are lots and lots of species of roundworms and there are lots that can cause infection in humans, many, many, too many for one show. So first we're going to talk about Ascaris. Um, and I probably just so you know, because when you did your, your last... we did our last two part show on medical TV...

Justin:

Mm.

Sydnee:

... everybody was waiting for that second part. I probably won't do these all back to back 'cause they're gonna make Justin really uncomfortable.

Justin:

Yeah. And we've had like a rough run, lately, and I would like something a little more palatable.

Sydnee:

We'll take some breaks in between...

Justin:

Thank you.

Sydnee:

...something that won't be so squirm inducing.

Justin:

I appreciate it.

Sydnee:

So first of all Ascaris or Ascaris lumbricoides, which is a roundworm that infects the human gut. Uh, there's a sister worm that, uh, Ascaris suum that can infect pigs, but um, we're probably more concerned with the one that that can infect our colon.

Justin:

Yeah. Um, well, I mean, I don't know, Babe: Pig in the City was a really good movie, so I'd hate if that...

Sydnee:

So you're worried about Babe?

Justin:

I'm worried about Babe.

Sydnee:

Well, they, they probably started out as like the same worm and then we domesticated pigs and we hung out with pigs all the time, and so...

Justin:

All the time.

Sydnee:

... now we each have our own flavor.

Justin:

Okay.

Sydnee:

Yeah. Who knows? We'll blame it on the pigs. They gave it to us. Uh, it still, um, affects over—

Justin:

I think we're probably even. We have visited some unfortunate things on pigs in the last few years.

Sydnee:

That's... Yeah, that's fair.

Justin:

Few, few millennia. Yeah.

Sydnee:

Yeah. No, that's fair. The with— Especially with, like, the... in recent years, everyone's, like, fascination with bacon.

Justin:

Mm-hmm.

Sydnee:

Guys, can I just say something? Like, we all know bacon tastes good.

Justin:

Move on. Just eat it.

Sydnee:

Right.

Justin:

Just eat it and move on.

Sydnee:

Don't act like it's something fancy or special if, like, there's bacon in some— Like, come on.

Justin:

Bacon's everywhere now.

Sydnee:

We all know bacon's great. It's not...

Justin:

Do you know if you removed every other living thing from the earth...

Sydnee:

[laughs]

Justin:

... you could see a vague skeleton of bacon that tells you where the, um, fat people used to live.

Sydnee:

[laughs] That's all it is. They're just bacon shadows. They call 'em bacon, bacon ripples, bacon echoes...

Justin:

Bacon ripples. There's a lot of terminology, just thrown around.

Sydnee:

... of humanity. They're bacon ripples of humanity throughout the universe. I think that was on an episode of Doctor Who.

Justin:

Mm-hmm.

Sydnee:

Um, now, Ascaris still affects over a billion people worldwide. Um, and the way you get it is mainly from drinking or eating the eggs in contaminated food and water. So it's passed from person to person. So, you know, in areas where there isn't, uh, as much sanitation where water quality is poor or where, um, people use... Are you familiar with the term night, night soil?

Justin:

Uh, no, actually

Sydnee:

Or night fertilizer? Night soil? I think night soil is more common. Anyway, it's people who use... for fertilizer, they use human feces.

Justin:

Okay.

Sydnee:

So if that's prevalent, um, if...

Justin:

Secret dirt is what we called it back in the day.

Sydnee:

[laughs] Back when you used it. Secret dirt.

Justin:

Back when I used it. In my agricultural years.

Sydnee:

Um, so using that, especially, you know, if you have *Ascaris* and then you're passing the eggs in your stool, and then you grow your food in night soil, and then there are eggs on, you know, like, on vegetables, like, if they're not cleaned properly or it can be in meat or fish or whatever.

Justin:

So just to be clear because, uh, this is something we run into from time to time, we make light of stuff on the show, just because that's the show, but don't want people to get, um, the mistaken impression that this is not still a serious issue, uh, for the people that are, that are, uh, faced with it. And of course, mainly in, in developing nations, I think it's fair to say. Um, so we, you know, I don't want to give the impression that we're making light of their plight, because it is obviously very, very much not a goof.

Sydnee:

No, absolutely it... And *Ascaris* is present in basically every country on earth. Um, you can get it anywhere, but it definitely is more common in places where sanitation is more of an issue.

Justin:

Mm-hmm.

Sydnee:

Um, for sure, but you can get it here.

Justin:

Great.

Sydnee:

So...

Justin:

Okay, cool.

Sydnee:

Yeah. So don't get too comfortable.

Justin:

Cool afternoon, I'm having.

Sydnee:

So I mean, I... take it seriously when they tell you to wash your produce.

Justin:

Yeah.

Sydnee:

Right.

Justin:

We should start doing that.

Sydnee:

I know. [laughs] No, we do that, we do that.

Justin:

Yeah. We do that.

Sydnee:

Yeah. We do that.

Justin:

Yeah, yeah. We do that.

Sydnee:

Yes, we do. Do you not...?

Justin:

Yes, dad.

Sydnee:

Never mind. I don't wanna, I don't wanna know. Never mind. Um, the eggs of *Ascaris* are pretty hardy. Uh, we have found them from as far back as 30,000 years ago.

Justin:

Wow.

Sydnee:

They're like pretty tough little boogers. And they live in, or they, they can hang out in the soil, I should say.

Justin:

Mm.

Sydnee:

They... It won't fulfill their life cycle there, but they can hang out in the soil for a long time. They may be the oldest human parasite that we have documentation of. And they've been found from Peru, to Egypt, to Tennessee. And they've written about... been written about in, uh, the ancient medical records from China, Greece, Rome, basically everywhere. So they're everywhere. They're pervasive.

Justin:

Making themselves known.

Sydnee:

Yes. And—

Justin:

Getting out there.

Sydnee:

Yes. And when I, when I describe to you the worm, it'll be obvious why people knew about 'em 'cause this is not a subtle, this is not a subtle— It was kind of like when we talked about the Guinea worm.

Justin:

Mm-hmm.

Sydnee:

Like, you know, if you have it.

Justin:

Right.

Sydnee:

It's not a subtle disease. Same idea with Ascaris. Um, a couple people have been instrumental in figuring out kind of this life cycle of Ascaris and where it comes from and how the eggs are passed along and all this kind of stuff. Um, before them, it was described in the 17th century, by Dr. Edward Tyson, uh, which is great, 'cause he just observed and wrote about, you know, the course of the infection and what it did and that kind of stuff and that was excellent, but I really think there are two more scientists who deserve a little bit more credit in this arena.

Justin:

Mm-hmm.

Sydnee:

Uh, one is Dr. Giovanni Batista Grossi, who, in 1878, decided he really wanted to get intimately acquainted, with the life cycle of this worm. So he took eggs that he found, um, in a corpse that he was performing an autopsy on, and he wanted to test out, "So if I swallow these, am I then going to get infected," because that would... you know, then he would prove that it was, you know, passed by my favorite route of transmission, the fecal-oral route.

Justin:

Sure.

Sydnee:

Right.

Justin:

The flavor— The bylane to flavor country, we call it.

Sydnee:

[laughs] So, uh, he wanted to do you this, but he had to prove that he didn't have worms first, right? 'Cause he...

Justin:

Route 60 sucks, would also be appropriate.

Sydnee:

[laughs]

Justin:

Sorry.

Sydnee:

But, but... So, so he had to prove that he didn't already have worms, 'cause that would blow his whole, you know, theory if he already had 'em...

Justin:

Sure.

Sydnee:

... and he thought he got 'em from... Anyway. So, uh, he took these eggs that he harvested and he kind of made, like, a little, I don't know, like a fecal garden, fecal incubator.

Justin:

Okay.

Sydnee:

And just kept them there for a year... just about a year, while he tested his own stool, uh, regularly for the presence of eggs.

Justin:

You know, a lot of the images we get of scientists in the media, TV, and movies, there are the anti-social loner. And I think it's easy to forget. Scientists are just like us.

Sydnee:

[laughs] We... I think that it's important to know that, that everything we understand, not just about, like, medical history, but I mean every branch of science, is on the backs of people like Dr. Grossi, who was willing to, every day, for a year, poop in a cup and look through it under a microscope, for the presence of parasite eggs. And then at the end of that year, when he had determined, he felt comfortable saying he did not in fact have Ascaris. He drank the eggs that he had preserved.

Justin:

He actually only needed to do it for six months, but you know how it is when you get into a habit, it just feels right.

Sydnee:

[laughs] So he, uh, he drank the eggs 22 days later, uh, I'm assuming he had... was continuing his daily fecal investigation. It's part of your morning routine, right?

Justin:

Mm-hmm.

Sydnee:

You have your... You get up, you take a shower, you have your coffee, you examine your poop for Ascaris eggs. And he found them in his feces, so he proved that transmission. Um, he was not the only one to do this. I think that's the most interesting, 'cause, like, once somebody's done this, like, as a currently practicing physician, like, "I have that piece of information, thank you, dude for doing this," 'cause that means, like, I... the onus is not on me, right?

Justin:

Hmm.

Sydnee:

To do it. But uh, there was a Japanese pediatrician in 1922, Dr. Shimesu Koino, who said, "You know, we still don't understand this enough. I'm not ready to be done with this self experimentation. I'm gonna do this as well." So he took it a step further. He drank about 2000 Ascaris lumbricoides eggs.

Justin:

Hmm.

Sydnee:

Um, which is, I think the most that have ever been, like, intentionally ingested. [laughs] Not that there's, like, a huge competition for that.

Justin:

How about it, Guinness?

Sydnee:

Um, but, and in order to again, the life cycle. but he took it a step further. He also made his brother... his younger brother, drink 500 of the Ascaris suum, that... the pig worm eggs, to say that as well.

Justin:

I... when I was younger, we used to play a game called taste my steel, where I would throw a steel baseball bat or an aluminum small bat at my little brother, Griffin, who would then duck or try to leap out of the way. Taste my steel. I am like one of those brothers who gave their kidney to their brother compared to this dude.

Sydnee:

[laughs]

Justin:

Like, I am a saint.

Sydnee:

Now to be fair. He got much sicker than his little brother did.

Justin:

Well, he ate four times as many dirty eggs. I would hope so.

Sydnee:

And he ate the ones that cause human problems.

Justin:

Mm-hmm.

Sydnee:

Um, he got... He actually drank so many that he began, um, coughing up the larva, uh, which is... was a really, I know that sounds terrible, but this was a really important finding, uh, for Dr. Koino, because this helps us to understand kind of the weird, um, indirect pathway that these little guys take when they get inside our body.

Justin:

Hey, actually coughed the eggs into the drink, he was enjoying in the... at the time and that is how we got bubble tea. Now, you know.

Sydnee:

[laughs]

Justin:

The rest of the story.

Sydnee:

I already never wanted to drink bubble tea, like, I've had it and I never wanna drink it, again, but now I really don't.

Justin:

Triple duper don't.

Sydnee:

Yeah.

Justin:

So what's next, Syd? What else you got for me? I'm not skeeved out yet. I'm doing okay. How do I know if I have this thing though, so I can get out in front of it?

Sydnee:

Well, I'm gonna tell you about the long, strange journey of the Ascaris worm inside your body, right after you take this long strange journey with me to the billing department.

Justin:

Let's go.

[theme music plays]

[ad break]

Justin: So, how do I know if I have one of these worms?

Sydnee:

So like I said, the worm is not done once you swallow it and it makes it to your stomach. Like, it's about to go on a trip. It... So you eat the worms, however, and they migrate from your stomach, to the small intestine, to your liver and then from your liver, they're going to make the trip to your heart via the portal circulation system. So blood vessels, basically.

Justin:

Okay.

Sydnee:

Um, from your heart, they're gonna make it to your lungs. And this is important, because as Dr. Koino noted, he was coughing up worm larva, right? Well, what you do when you cough up those worm larva, is you auto infect, you reswallow them.

Justin:

Okay.

Sydnee:

So you kind of cough, swallow that back down, and you've just infected your gut again with worms.

Justin:

Oh. A never ending cycle kind of thing,

Sydnee:

Which is important, which is exactly how it's supposed to work. I mean, if you're looking from the worms perspective, which is...

Justin:

Right. That's how they want it to run.

Sydnee:

Right. Which is kind of a fascinating, indirect route to go. Um, they make it back to their, back to their desired location of the intestines at that point, and they're at a point where they are adults and they can, um, attach inside your... or actually, they just kind of live there, they don't attach, they just kind of hang out in there. Um, and relay eggs. And then you're gonna see the eggs back in your, in your stool.

Um, when they're in your lungs, they can cause... So, they're gonna cause a bunch of different symptoms. When they're in your lungs, they can cause a, uh, a pneumonitis, like, an inflammation of your lungs. Um, so you can get, like, cough and wheezing and shortness of breath, and that kind of thing, like the kind of symptoms you'd get from another pneumonia inflammation, or pneumonia, inflammation, infection, that kind of thing. Um, that's called Loeffler's syndrome.

Once they're back in your intestines, um, and you're, you know, now they're laying eggs and they're coming out in your poop and you are a disease vector, um, you can get some other kinds of symptoms. You can get loss of appetite, uh, you can get, uh, vomiting, you can have your belly, uh, swell, you know, distension, um, you can have a lot of abdominal pain.

They can even cause, if there's enough of them, blockage inside your intestines, um, the, you know, ducts of your liver, inside your gallbladder, that kind of thing, if there are that many worms in there. Which there can be, there are some people who are infected with multiple of these worms, not just one.

Justin:

That's good to know. I... Here, I thought it was just the one, but sounds like a lot.

Sydnee:

No, I mean, a lot of the time if you're eating or drinking contaminated food, it's not contaminated with, one egg, it's contaminated with multiple eggs.

Justin:

Right. Sure. Yeah, yeah, yeah.

Sydnee:

So we tend to, we tend to, like, have this image of, like, worms in the intestines of, like, people who have that one big, long tape worm.

Justin:

I know. I've, I've got that image all the time.

Sydnee:

[laughs] Uh, well, I mean, I do.

Justin:

Okay.

Sydnee:

But these are different, first of all, than tape worms, and secondly, you can get a lot more Ascaris than just one. Um, 4 to 16 days or so after you swallow the eggs, you're gonna get the initial, like, pulmonary, like lung symptoms and the systemic fevers and chills and that kind of stuff. Um, but it's gonna take about six to eight weeks for you to start getting all the stomach symptoms that are gonna tell you something's wrong down there.

Justin:

Oh, that'll be— It's fun to look forward to, though. You know, like, you know you got that coming up.

Sydnee:

[laughs]

Justin:

You know.

Sydnee:

It... Well it's important to set goals.

Justin:

Sure. Right, right.

Sydnee:

Yeah.

Justin:

You plan around it. That's the secret. Don't, don't... Cancel that trip to Disney World. You're not gonna feel like doing that.

Sydnee:

Now, if you do, um, poop out a worm— [laughing]

Justin:

Great conversation starters from Sydnee McElroy.

Sydnee:

... uh, you're gonna know about it.

Justin:

Yeah.

Sydnee:

Um, this is probably why, when I said, like, this disease has been, uh, described all throughout medical literature, throughout history, is because it... similar to the Guinea worm, You don't miss it. Um, it's a fairly large worm, uh, especially the females are bigger than the males and it can be up to 35 centimeters in length...

Justin:

Mm, yeah.

Sydnee:

... which is pretty big it's between two and six millimeters wide. It's, um, like a creamy light, like, white color, all the way to like a light brownish kind of color. Um, it's a cylinder, it's round. You know, it's roundworm. And it's tapered at both ends. So, um, like, you're not gonna miss it if it, if it comes out. This isn't something... Like, sometimes people come in and be like, "I think I may have pooped out a worm, but I'm not really sure." Um, there are worms that are more subtle, Ascaris is not it. You know.

Justin:

You know.

Sydnee:

If it's, it— Yeah. You know, if you've, if you've pooped out an Ascaris.

Justin:

I'm shocked, it'll just let you poop it out. It seems like he would, like, crawl back up the pipes or something and climb on your toothbrush or something.

Sydnee:

It doesn't, normally. It— Normally, like, you have to, um, [laughs] you have to, like, take medicine for it to get pooped out.

Justin:

Great. Okay. Figured.

Sydnee:

Um, now when it comes to cures, uh, because these have been around for a really long time, people have been trying to figure out, like, is there some way to get rid of it for a really long time? Um, the ancient Egyptians had some cures that involved, like, different reeds and plants that you could grind up and you could cook 'em with some honey and, and take that to try to clear your system of worms, uh, pomegranates were a popular treatment, just eat a bunch of pomegranates and water.

Justin:

Sure, delicious.

Sydnee:

Yeah. And which— Why not? You know. Um, Hippocrates wrote a lot about worms. He described them in great detail, the different, um, symptoms that they would cause that he understood that they lived in the intestines and that there were, uh, various, uh, different symptoms, you know, different systems that could be infected by... uh, affected by the worm.

Um, and he described some treatments as well. One actually involved, like, cutting a worm. He described where he cut a worm out of a boy's abdominal wall. Like, right out of the wall, because it had formed, like, a fistula, like, a

little tract from inside the intestines, outside the body. And he just, like, cut it open and tried to pull the worm out that way.

Justin:

This isn't even educational anymore. You're just trolling me. Right?

Sydnee:

No, that's like, that's, uh... I mean, we don't do it that way. Like, that's not what we do now, but like, that was, that was what...

Justin:

You're a monster.

Sydnee:

It's what he did.

Justin:

Yeah. I believe you. No, I know. I buy it. I just, I feel like you're setting up this... It's become less of a podcast and more of like a Saw-type prison of audio that you've constructed for me each week that I have to, like... just me and my anxiety have to like drag or claw our way out of somehow.

Sydnee:

Well, nobody's gonna, now, if you are infected with Ascaris, nobody's gonna cut it out of your abdominal wall. They're just gonna give you medicine that'll make you poop it out, so...

Justin:

But you know how the mind's eye works, right? Like, you know that, like, I know objectively, that's not happening to me.

Sydnee:

[laughs]

Justin:

And yet I have to live here with these thoughts and notions and images.

Sydnee:

See, I can't connect with this.

Justin:

Okay, great.

Sydnee:

Yeah. I mean, I've studied this for a long time,

Justin:

Moving on.

Sydnee:

Um, if you didn't wanna have a worm cut out of your stomach wall, and I don't, uh, you could try— Hippocrates, um, recommended fasting for three days, and then you drink a mixture of, like, macerated parsley, and honey, or apply a compress of like greasy hair, and some fruit, and some leaves, and some cedar oil. Oh, and then also you need to eat garlic and then wash your hair and then rinse it with sea water. Um, which all, I think sounds more appetizing.

Justin:

Yeah. Why didn't you lead with that one?

Sydnee:

[laughs]

Justin:

Seriously. At least try it first, even though it's made up and won't work. At least gimme some time to stall.

Sydnee:

Um, there were surgeons that would occasionally just cut the worms out. That's been documented different times where, um, uh, they would see, like, patients with big swollen bellies, and they would suspect that worms were the culprit. And so they would just do these big abdominal surgeries to try to remove all the worms, but throughout most of history surgery itself was way too risky—

Justin:

Sure. Right.

Sydnee:

... to routine [crosstalk].

Justin:

It wouldn't be worth the... Yeah.

Sydnee:

No. So unless, unless you had somebody who was about to die from, like, a blockage or something, you wouldn't have attempted this, just because you thought maybe they had some worms in there.

Justin:

Right.

Sydnee:

Um, there are all kinds of herbal remedies that you'll read about, um, things that... Uh, something I thought that was very seasonal, pumpkin seeds.

Justin:

Oh, sure. You know, pumpkin spice is huge right now. So here's just yet another place in your life to build room for it.

Sydnee:

I don't see, like, Starbucks ever advertising that, like, "the PSL: also good for intestinal worms."

Justin:

Well, yeah. I mean, it's not a huge selling point, but there's so many other pumpkin drinks in the game, now. Maybe they need a way to differentiate.

Sydnee:

Do you wanna borrow that, Starbucks? Just let me know.

Justin:

Yeah. Just let us know.

Sydnee:

I mean, yeah. But you got to put the seeds in there though.

Justin:

Mm-hmm.

Sydnee:

Um, there are also some different, uh, like I said, some different herbal remedies, uh, something called the Paco leaf, Cascara and then lots of different laxatives, basically, like...

Justin:

Sure.

Sydnee:

Lots of recommendations, for senna or prunes or something like that. The idea, being that, I don't know, maybe, like, you could create like a tidal wave effect, like, through your...

Justin:

Everybody out.

Sydnee:

... through your intestines, just, like—

Justin:

Everybody out. Right. Last stop.

Sydnee:

Like you evacuate. [laughing] Exactly. There you go. Flush everything straight out of there. Um, one interesting kind of note about Ascaris that I stumbled upon as I was reading about researching. Did you know that Richard III had Ascaris?

Justin:

No. I know we found him not too long ago. We found his, his body in, like, a parking lot or something, right?

Sydnee:

That is right. The way you just described that is very different than the reality that we found the body of Richard III in a parking lot. Like we uncovered the remains of Richard III...

Justin:

Okay, like, under the—

Sydnee:

...in the earth, underneath. [laughs]

Justin:

He wasn't, like, in the trunk of, uh, of a Subaru, like, yes, he was buried there.

Sydnee:

It sounded like a very different, you know, just like a very—

Justin:

"That's King Richard III and he looks great."

Sydnee:

... very scary episode of, like, Unsolved Mysteries...

Justin:

Right.

Sydnee:

... that we were about to start. "We found the body of King Richard III in the parking lot, um, in a town in England." No, in 2012, we found the remains of, uh, the last Yorkist king. His death ended the War of the Roses. I'm giving you some facts about Richard III, in case you don't know.

Justin:

You... There's a Shakespeare play about him.

Sydnee:

So I assume you know everything about him.

Justin:

Uh, I know everything in the Shakespeare play. "Now is the winter of our discontent, made glorious summer by this sun of York."

Sydnee:

Are you, oh, are you gonna, are you gonna do it all now?

Justin:

Not unless you want more than that.

Sydnee:

No, I don't.

Justin:

Okay. That's all I got.

Sydnee:

Unless, I wanna call your bluff, I guess.

Justin:

No, I'm literally telling you that's all I know.

Sydnee:

Okay. All right.

Justin:

I'm looking you dead in the eye and saying that's all I know.

Sydnee:

Okay. We'll stop. Um, so when they uncovered his remains among his various...

Justin:

Crap, I hope that's Richard III. Pretty sure it is. Don't let me know if it's not, just lie to me, just lie to me, baby. Please just let me live in the—

Sydnee:

Somebody's has already corrected me.

Justin:

Let me live in this dream!

Sydnee:

That we've already gotten a tweet or a Facebook message already correcting you if you're wrong.

Justin:

It's been a while since I was spending considerable time with the classics.

Sydnee:

There you're... Um, man, your theater professors from college are gonna be so disappointed.

Justin:

No, they don't listen.

Sydnee:

That's fair. They don't. Um, so among his various other ailments and wounds, uh, they, the researchers also discovered a huge amount of Ascaris eggs preserved in the soil. Um, kind of around the area where the King's pelvis was.

Justin:

Uh...

Sydnee:

So, like, insinuating that... You know, you can assume that they were from his intestines.

Justin:

Oh, okay. Got it.

Sydnee:

Yeah. Around the area of his pelvis.

Justin:

Right, right, right.

Sydnee:

You know, like where the intestines would have been, before, you know, time...

Justin:

Got it.

Sydnee:

... you know, when earth took its course. Um, this suggests that the king probably had a pretty bad case of worms. Um, now they, because at the time he would've been, uh, we could say among the more well-nourished members of society.

Justin:

Sure. One would think, yeah.

Sydnee:

Right. He was not suffering for lack of food. Um, it probably didn't cause him any huge problems. He would not have suffered malnourishment from having the worms. He probably still had plenty to eat. Um, but he would've had occasional, like, stomach pains, uh, from it.

Justin:

From it. Yeah.

Sydnee:

It was actually very common in the medieval era, um, but it would've affected like, you know, peasants who didn't have access to regular food.
[crosstalk]

Justin:

A lot of bad hi— A lot of poor hygiene, I would imagine, since we didn't know that hygiene existed. [laughs] Or it was not—

Sydnee:

Well. Yeah. Well, everybody had bad hygiene and everybody had worms, but if you didn't have access to food, if you were poor and you didn't have a lot of food, it would've been harder on you.

Justin:

What would they have even done for, like, occasional stomach pain, back in the day?

Sydnee:

Well, I mean, they probably would've just bled him.

Justin:

Sure.

Sydnee:

I mean, that... and that's probably how he would've been treated. He... His humors would've been thought to be out of whack, so they would've, like, administered things to make him pee or make him poop or make him puke or, um, just bleeding, lots of bleeding, you know, this was, like, leech time and cutting time and that kind of thing.

Justin:

Sure.

Sydnee:

Yeah. Um, it was also a time when many farmers used feces as fertilizer, so that's probably where the king got it. He probably ate some vegetables from the garden that, you know, had a little bit of earth left on them...

Justin:

Sure.

Sydnee:

... um, and then he got infection. Um, and like I said, he probably was just treated by the, by the, you know, barber surgeons with bleeding and such, or maybe some dietary adjustments. Um, now of course he was killed in battle in 1485 from a huge trauma to the back of his skull.

Justin:

Probably a sword.

Sydnee:

That would be my guess that he was, like, struck in the back of head. And that has nothing to do with worms, but what's interesting to know about Ascaris, is that sometimes the worms are known to... like, when the body's in acute stress, like, right before you die, uh, they, they kind of abandon ship.

Justin:

Oh.

Sydnee:

Like, they don't wanna go down, too. So they wanna, like, leave this vessel that is about to no longer be viable. Uh, so they may, they may, I'm not saying they did, but they may burst forth from any orifice that is nearby.

Justin:

Cool. Finally, a foolproof cure for roundworm. Get hit in the head with a sword and they'll burst out of your, uh, tear ducts.

Sydnee:

[laughs] That would be a pretty... Uh, can you imagine like that image of someone...

Justin:

Oh, please, go on.

Sydnee:

... who's been struck on the battlefield and then as they're dying, like worms bursting out...

Justin:

You must have thought you hit him so hard.

Sydnee:

[laughs]

Justin:

"Guys, did you see that good swing I did? Man. I knocked the words clean out that fool."

Sydnee:

I don't know. This may be just like a last... like, the last you're getting back at your enemy, like, your final vengeance is like this horrifying thing that they're gonna be like branded on their brain for the rest of eternity with that image.

Justin:

Yeah, they have to live with that image.

Sydnee:

I'm not saying that happened to Richard III. I'm... I don't have no idea.

Justin:

How do—

Sydnee:

But then just like a thought, just like...

Justin:

How do we actually treat it?

Sydnee:

We actually treat it with some medications. Albendazole, mebendazole, piperazine, uh, depending on what's available. It can even be treated with one dose of some of these medications. Um, so it, there are mass treatment programs and areas where it's really, uh, common. It sometimes helps to just come in like every six months and treat everybody, just assuming that

they've been exposed to the, to the worms. This is something that I've participated in myself...

Justin:

Huh.

Sydnee:

... in my end, in some of my ventures. Um, safe water, of course, uh, cooking and cleaning food appropriately is all part of, you know, preventing. Preventing yourself from getting it is better than treating it, because if you are treated, like I said, the... a worm's gonna come out of your butt.

Justin:

Nobody wants that.

Sydnee:

Nobody wants that. You know, and that's a bad road to stare down. It's like, I want treatment for this worm that's in me, but it's... then I'm gonna have to see it come out in the toilet.

Justin:

So here's how we can get those taken care of too. Get... They're on the way out with the route, the Guinea worm. Maybe, probably not. There's a lot of them.

Sydnee:

There's a lot of 'em, they're really common.

Justin:

We're also fans, a lot of shows in the Maximum Fun network. Uh, uh, I make a few others, like My Brother, My Brother and Me and The Adventure Zone. Uh, Syd, and I just sat in on a guest episode of Oh No, Ross and Carrie, where we went to West Virginia's, the Mystery Hole. So look for their podcast and you can go listen to our little adventure there, it was a lot of fun.

Sydnee:

Hmm.

Justin:

All those shows are at MaximumFun.org. Uh, also wanna say a big thanks to The Taxpayers for letting us use their song, Medicines, as the intro and outro of our program. And, uh, is there anything I'm forgetting? No, nothing.

Sydnee:

Uh, oh, you should... Um, if you like my sister Rileigh, and I know I do, who occasionally guests on Sawbones, you should go check out her, um, GoFundMe page, where she is trying to raise money for her Speech and Debate team. Uh, if you want a link to that, you can visit our Facebook page, uh, Sawbones on Facebook and, uh, there's a link that you can follow if you're interested and you wanna support Speech and Debate.

Justin:

Uh, also thanks to folks who have sent us stuff on our PO box. It's, uh, Sawbones, PO box 54, Huntington West Virginia, 25706. Thanks to Mark Ferris for the magazine, Ian sent us a lovely yoyo, Deanna sent us a shirt for Charlie, and, uh, Vanessa sent us a lovely book and, uh, donation. Uh, so, uh, thank you to everybody who did that. Uh, you are too kind. And, uh, that's gonna do it for us, till next week. Uh, my name is Justin McElroy.

Sydnee:

And I am Sydnee McElroy.

Justin:

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

[theme music plays]

MaximumFun.org
Comedy and culture.
Artist owned.
Listener supported.