

Hi there, if you don't know, my name is Xander. And this is the story of how the Mayo Clinic Proceedings accidentally named a ligament of the human body after me. The Xander Ligament. Allow me to explain? Buckle up, it's going to be a weird video today.

## INTRO

In October of 2017, an article with a long and super serious name was published in Mayo Clinic Proceedings, a super serious medical journal. On page 1565, in the third paragraph under the section titled "histology of bladder cancer" is this sentence. It's a bit long, but stay with me here, I promise it pays off: "Pure adenocarcinomas of the urothelial tract are rare and are distinguished by urachal or nonurachal origins. The urachus degenerates after embryogenesis to form the median umbilical ligament (also called the Xander ligament)..."

Hey, that's me! So, how in the world did this happen?

In April of 2017, my girlfriend Vanessa made a random, off-handed comment about something she was wondering.

[Interview with Vanessa]

"Where does the belly button go?" -- that was the question that would eventually change the landscape of medical history. K-Kind of.

I decided to try and answer the question in a YouTube video, because it was exactly the sort of bizarre thing that I like to make videos about. After a month or two of research, I had written an episode about the

internal anatomy of the human body located behind the belly button. You know, normal stuff. The resulting episode was published on June 17th, 2017.

One of the things that I had researched for the episode, and honestly, my primary motivation for making the episode, was a disorder called “patent urachus.” It’s a somewhat rare and exceedingly bizarre disorder in which a person leaks urine out of their belly button. Seriously, that’s a real thing that can happen.

As I explain in the belly button episode, before a baby is born, in order to pass urine, it actually travels from the bladder through the umbilical cord so that the mother’s body can process it. In other words, there is a tube called the urachus that connects the top of the bladder to the inside of the belly button. Around the time a baby is developed enough to survive birth, the tube closes up and becomes a ligament instead. That’s what the journal article is referring to when it says “the urachus degenerates after embryogenesis to form the medial umbilical ligament.” But how did my name get attached to that ligament?

Well, in my episode on the belly button I explain that there are a few different ligaments in that area behind the belly button. The urachus transforms into the median umbilical ligament, and in the disorder called patent urachus, it opens back up by mistake, allowing a person to pee out of their belly button. But then there are two relatively boring ligaments called the lateral umbilical ligaments, located to either side of the median umbilical ligament.

Within the episode, hidden between several bad jokes, is another bad joke. Because the names of those ligaments are so similar, I say in the episode, as a joke, that the median umbilical ligament deserves a more interesting name.

[Clip from “Where does the Belly Button Go?”]

Here’s where things get out of my control. One of my viewers, and someone that I knew via the internet but, at that point had never met in person, must have agreed with my name-changing proposal. Less than a day after my video came out, he went to Wikipedia, and edited the median umbilical ligament page such that it included the phrase “also known as Xander’s ligament.” He linked to my video as the “source” for the “fact.” He did this without my knowledge, but afterwards he did tell me about it. We laughed about it, he joked that if it stayed up long enough it might end up in a textbook, and then... we pretty much forgot about it.

I asked this mysterious character what he remembered about the incident with Xander’s Ligament and Wikipedia.

[interview with mysterious stranger]

Admittedly, I may have screwed up here by not reversing the Wikipedia graffiti. But the reference was a YouTube video that was clearly a bad joke. Surely someone would fix the page without my intervention, right?

Well, on September 3rd, 2017, less than three months after my video was released, a Wikipedia editor came along and changed the reference

section of the median umbilical ligament page. But here's the thing: they didn't remove the reference to Xander's Ligament. They didn't remove the link to the YouTube video. Instead, they updated the formatting of the page so that the YouTube reference looked more legitimate and in line with other anatomy pages on Wikipedia. In my understanding, a real person looked at the Wikipedia page, and didn't see anything wrong with the Xander's Ligament reference except for the fact that it looked kind of clunky, and so they ran a clean-up tool to make it look nicer. At the time, I had no idea that this had happened.

For reasons unknown to me, the Belly Button episode ended up being my most popular video ever posted on the ARTexplains channel. As of now, it's somewhere between 90K and 100,000 views. Apparently, enough people were wondering the same thing that Vanessa was wondering that they ended up searching YouTube for answers. The video was given a bit of extra legitimacy because it had been seen a certain number of times. The "Xander's Ligament" became more believable. On the 6th of March, 2018, roughly nine months since the video was released, a commenter had this to say on my Belly Button video.

"Wikipedia refers to the Xander's ligament. Wow! That's how I found this channel. I am now subscribed."

When I read that comment, my pulse skyrocketed. At that point, it had been many months since I had even thought about Xander's Ligament. I thought to myself, oh crap, is that still up there? I went to Wikipedia, and sure enough it was still there. And it looked nice, and it looked real. Here's where I screwed up a second time, I didn't fix it. At this point, I

kinda wanted to see how long it could stay up there. I didn't think it was doing any harm or spreading around. What I should have done, in retrospect, was some more searching on the Internet to see if Xander's Ligament showed up in other places. But I didn't.

Months later, completely randomly, on or around August 29th 2018, I went back to the Wikipedia article to see if it was still there. It had popped into my head and I was curious. I figured maybe the time had come to change it back to normal. But I was too late.

On August 6th, 2018, almost 14 months since the page had been originally "improved", a Wikipedia editor came along and fixed the page by removing the reference to Xander's Ligament and removing the link to the YouTube video. Problem solved, right? Oh no. The Wikipedia editor was smarter than me and searched the internet to see where else the term was turning up. He made a post on a wikipage, explaining the drama.

"And so it begins"

"Oh dear."

"Youtube video (link to my video) last year coins median umbilical ligament after the narrator of the video"

"Article changed day after video is published"

"Now referenced to in one published journal article (with a link to the article)"

"I have removed the term from our article and contacted the journal's author for correction"

When I saw this, I was absolutely floored. A published journal article had used my name for a ligament of the human body. And not just any journal. Here's an excerpt from the website describing the journal to help you get an idea:

“One of the premier peer-reviewed clinical journals in general and internal medicine, Mayo Clinic Proceedings is among the most widely read and highly cited scientific publications for physicians, with a circulation of approximately 127,000... the Mayo Clinic Proceedings' content includes Nobel-prize-winning research.”

<https://www.mayoclinicproceedings.org/content/aims>

So I was... in a unique position. I talked with a bunch of people about this, trying to figure out what to do, but most people thought it was harmless and hilarious.

Now, if you're an astute observer, you may have noticed that in my YouTube video I call it the Xander's Ligament, and the original edit to the Wikipedia page also called it the Xander's Ligament. So how did the apostrophe S get dropped from the name of the ligament by the time it was published in Mayo Clinic Proceedings? I have no idea.

What I decided to do was message the editor on Wikipedia, thanking him for fixing the page and offering to discuss what had happened.

According to the Wikipedia editor, he was investigating some minor changes on Wikipedia anatomy pages, when he noticed that the name Xander's ligament was unusual compared to typical anatomy names which usually stem from Latin, or Greek, etc. And when he investigated

the name, he found out pretty easily that it was made-up, but he also found it in the Mayo Clinic Proceedings article. He said it was pretty interesting to him how this had all come about.

I also sent multiple emails to the corresponding author of the journal article, telling them who I was, where the name had come from, and asking how it had ended up in the journal article. They never wrote back. So eventually, I found the contact details of the other author and sent him a message. He replied very quickly, and informed me that he did not know where the term had come from. He showed me some proof which I can't share here that he hadn't written "Xander's Ligament" or "Xander Ligament" anywhere in the original version of the journal article. In other words, he says it was probably added sometime in the editing process, once it was out of his hands.

My theory, which I cannot yet prove, is that someone in the editing process added the term to make the paper more readable, in the same way that editors will include conversions from Fahrenheit to Celsius when talking about temperature. The term may have been added as an accessible alternative to the medical name of the ligament, because that's how it looked on the Wikipedia page. In other words, it may have been the staff of the journal, and not the authors of the journal article that chose to use the term "Xander Ligament." But that's just a theory. We have not yet heard from the journal about this.

Some googling around the internet supports this hypothesis, because both Xander's Ligament and Xander Ligament show up in other places. As one example, a teaching hospital in Pakistan shares its slides online, and one set of slides from 2017 refers to Xander's Ligament. A more

recent version of the slides from 2019 also include the name. I have not been able to figure out how to contact the author of the slides.

It also shows up in a bunch of other places, like flashcard websites such as quizlet, and some medical wiki pages that seem to have scraped their entries directly from Wikipedia when the term was still there. And if you search for Xander's ligament on Google, the top result, for me at least, is still the Wikipedia page for the Median Umbilical Ligament.

One of my colleagues now uses the Xander Ligament in her classroom as an example of how fake news spreads on the internet, and why you shouldn't implicitly trust Wikipedia's information without following the references back to original sources. Lots of what is on Wikipedia is true, and it's a great resource, but you shouldn't assume.

I would also like to emphasize that the inclusion of my made-up name for a ligament in the Mayo Clinic Proceedings journal in no way undermines the integrity of the journal article, because it doesn't affect any of the discussions or conclusions. I haven't met the authors in person, but I have watched the video that goes along with their article, and they seem like excellent researchers with the best intentions of treating cancer.

I hope that one day the mystery of exactly how this happened will be solved. That journal article has now been cited in at least 5 other places, but as far as I can tell, the use of the term Xander Ligament has not spread with the citations. The author that I have contact with has let me know that he will attempt to correct any further online editions of the



article to not include the term, but the print version was already released years ago.

The moral of the story? My Wikipedia vandal summed it up best with this: “science is a social construct, and it’s a thing people are doing and not an objective font of perfect information”

Thanks for watching this very strange video. The best way to show support for these videos is to hit the like button, and subscribe to the channel. Please go watch the original belly button video if you haven’t yet, and please forgive my terrible jokes in advance. I also have a Patreon page where you can support the show, I’ve been making videos for over five years now, and I always have something brewing. Be careful on the Internet, and I’ll see you next time.