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The Role of Antibiotics in Acute Uncomplicated Appendicitis Treatment

Dr. Buch:
Welcome to *GI Insights* on ReachMD. I'm your host Dr. Peter Buch, and joining us today to discuss the treatment of acute uncomplicated appendicitis is returning guest Dr. David Talan. Dr. Talan is the lead author of a paper bearing the same name that was published in *The New England Journal of Medicine* in 2021. He's also a Professor of Medicine at the UCLA Geffen School of Medicine and is Board Certified in Emergency Medicine as well as Infectious Diseases.

Dr. Talan, welcome back to the program.

Dr. Talan:
Well, thank you for having me, Peter.

Dr. Buch:
It's truly a delight. Why don't we start with some background, Dr. Talan, because until recently, surgery was always utilized for appendicitis. So what led to the use of antibiotics as an alternative?

Dr. Talan:
Well, before there were antibiotics, there were surgeons and surgery. And so really, at the turn of the century, but not the last turn of the century, over 100 years ago, routine and urgent surgery became the treatment of choice, and it wasn't until many decades later that antibiotics were introduced right around the 1940s, and then antibiotics were used with surgery. And actually, the very first reports of treatment with antibiotics came from the 1940s and the 1950s and was observed that almost all the patients responded and seemed to be cured of their acute appendicitis when treated with antibiotics alone.

Then, of course, imaging came into use with first ultrasound and then CT, and that allowed doctors to better know if there was appendicitis there to begin with, right? And then also the stage of appendicitis—if it was localized or if it had ruptured and walled up into an abscess. And with that, there were investigators initially from Scandinavia who decided to do comparative trials of urgent surgery or antibiotics for what we call clinically uncomplicated appendicitis, and so that's where the idea for treating appendicitis without surgery began.

Dr. Buch:
So, Dr. Talan, can you just define, for those who are not aware of it, what acute uncomplicated appendicitis is before we move further?

Dr. Talan:
Yes. Well, acute uncomplicated appendicitis is where the pain in the right lower quadrant is localized there. The appendix hasn't burst. There's not diffuse peritonitis. And since imaging is virtually always done, the imaging supports that it's only an inflamed appendix, it hasn't ruptured, there's no substantial abscess, and there certainly isn't peritoneal spillage, so that's what's considered acute uncomplicated appendicitis.

Dr. Buch:
So with that in mind, when we're talking about acute uncomplicated appendicitis, who are the best candidates for an antibiotic regimen? And what's the efficacy of antibiotics?

Dr. Talan:
So again, going with uncomplicated, this has been well studied in both children and adults. And remember, anyone can get appendicitis, but the epidemiology is really centered in older children, adolescents, and young adults, but nonoperative treatment has been done in

patients of virtually any age. The ones for which we have the greatest experience from trials are healthy men and women, and boys and girls who do not have substantial comorbidities and who are not immunocompromised.

And let's try to describe the efficacy. Well, let's look at it like this. First, you might wonder or your patient might wonder "What's the chance if I qualify and I'm treated with antibiotics that I'll initially respond to antibiotics?" That is in the first few days. And about 90–95 percent will respond, and usually, they respond quite quickly, so patients will resolve most of their symptoms or begin to resolve most of their symptoms after 24 hours of antibiotics, and most are substantially better after only 48 hours.

There is a chance that even among this vast majority of patients who initially respond, they may get recurrence of appendicitis. And in general, what we found is that over a year that chance of appendectomy, if you add up those that don't initially respond and those who recur and decide to get surgery, about a third will wind up getting appendectomy later.

Dr. Buch:
So digging deeper into what you talked about in your CODA collaborative study, you demonstrated that 20 percent of patients with uncomplicated appendicitis confirmed in CAT scan are found during surgery to have an appendiceal rupture or an abscess. Is that figure correct?

Dr. Talan:
Right. Exactly. So in the trial that I participated in and helped direct, patients were randomized, and they had similar characteristics. So I guess what's important about what you pointed out is that we think CT scan is perfectly accurate, and it's not. It cannot see small appendiceal rupture, and that's why when patients are taken to surgery, rupture may be found but not appreciated on CT imaging and probably even less so with ultrasound that's used in children and young adults. On the other hand, it doesn't seem to substantially affect the efficacy of nonoperative treatment and antibiotic treatment alone.

If patients are going for routine urgent appendectomy, it would be seen. There might be a small area that looks like rupture or localized abscess. You know, the body is actually very good, our immune system, at walling off most of these inflammatory conditions so that they don't hurt us. And then, of course, the patient would just simply have appendectomy, and that would take care of it.

Dr. Buch:
For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and I'm speaking with Dr. David Talan about acute uncomplicated appendicitis.

So, Dr. Talan, if we zero in on the preferred antibiotic regimens, which antibiotics should no longer be used?

Dr. Talan:
I think you're going to try to construct regimens that have that type of GI spectrum, right? Gram negatives and anaerobes. We are seeing the emergence of significant rates of fluoroquinolone-resistant, what we call enterobacterales E. coli-like organisms. So I do tend to avoid fluoroquinolones. In addition, we also have been recognizing more frequently their serious adverse side effects. So I tend to prefer cephalosporins, more advanced ones like cefdinir or cefpodoxime with metronidazole as my oral regimen. I suppose Augmentin—we avoided that, but that's also been used effectively and so that might be something that could be tried, but it's sort of second-line in my opinion.

Dr. Buch:
Thank you very much. And does the use of NSAIDs for the pain that occurs with appendicitis increase the risk of bleeding or perforation?

Dr. Talan:
No. And that's been studied pretty well. If the patient happens to need an operation, there's no increased risk of hemorrhage related to NSAID use, and so it's important to be on top of the patient's pain control. We use round-the-clock NSAIDs and offer alternating opiates but just for the first few days, and we would expect the patients to respond clinically within 48 hours. And after 48 hours, then we want to evaluate that patient and potentially not only examine them, but potentially even reimage them or re-discuss with them if they want to push ahead with antibiotics a little bit longer or decide to have appendectomy.

Dr. Buch:
Now in the last few minutes of our discussion, are there any additional thoughts you'd like to share with our audience?

Dr. Talan:
The thing that we demonstrated is that there is an option for patients to be able to avoid surgery, avoid the cost of surgery, the risk of anesthesia, and the risk of being operated on and as well as be able to get over their illness at home. But it does require a discussion, and often patients depend on their primary care doctors to help sort this out, so knowing about this option and its safety and its efficacy

is important but also feeling comfortable and maybe being the person to do the follow-up, giving the patient a call or a video appointment to just make sure that they're taking their medicines and you answer their questions, reassuring them and making sure that they're improving. I don't think it's absolutely necessary for the patient to follow up with the surgeon. In fact, I suspect if they follow up with the surgeon, they'll be much more likely to get a surgery that they might otherwise avoid.

Dr. Buch:
What a thoughtful review of the treatment of acute uncomplicated appendicitis. And as we close out today's program, I want to thank my guest, Dr. David Talan, for sharing his insights. Dr. Talan, thanks so much for joining us today.

Dr. Talan:
Thank you, Peter, and thank you for your enthusiasm about my favorite topic.

Dr. Buch:
For ReachMD, I'm Dr. Peter Buch. To access this and other episodes in this series, visit *GI Insights* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening, and see you next time.