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Sussing Out Small Bowel Bleeding: Key Evaluation Tools to Know

Dr. Buch:

Do you remember the last time you had a patient who you suspect had a small bowel bleeding, despite a massive workup?

This is *GI Insights* on ReachMD. I'm Dr. Peter Buch, and joining me today is Dr. Jonathan Leighton. Dr. Leighton is one of the nation's experts on small bowel bleeding. Dr. Leighton is a Professor of Medicine and Chair Emeritus of the Division of Gastroenterology at Mayo Clinic, Arizona. He is also Vice-President of the American College of Gastroenterology. He is the interim chair of the IBD Clinic over at Mayo. Dr. Leighton has published extensively, is actively involved in research, and is one of the co-authors on "ACG Clinical Guideline: Diagnosis and Management of Small Bowel Bleeding," published in the *American Journal of Gastroenterology*, 2015.

Dr. Leighton, it's great to have you join us here today.

Dr. Leighton:

Hi there, and thanks for having me. It's a pleasure to be with you today.

Dr. Buch:

Dr. Leighton, let's just dive right in. When evaluating a small bowel source of bleeding, what are the possibilities in patients above and below 40 years of age?

Dr. Leighton:

Yes, that's a great question, and I think that the important thing to realize is that in patients over the age of 40, we worry more about blood vessel bleeding – what we call angioectasias, which are small blood vessel tumors that can bleed spontaneously. In addition to those angioectasias, there are other causes of bleeding, such as ulcerations in the small bowel that can be related to an inflammatory condition, such as Crohn's disease. But we also have to worry about tumors as well. In the younger age group, tumors are more of a concern than the angioectasias, but angioectasias can occur in that group as well. And then after that, we worry about inflammatory conditions, as I mentioned, which can cause ulcerations and bleeding in the small bowel, most commonly Crohn's disease, but even patients with celiac disease can develop an ulcerative jejunoileitis, although it is relatively rare.

Dr. Buch:

And of course, we can get small bowel bleeding as a result of using NSAIDs.

Dr. Leighton:

Yeah, that's a very good point. So the other big class are drug-induced causes, with the anti-inflammatory drugs being the most common drugs that will do that, and they cause something that we call diaphragm disease or NSAID enteropathy, which leads to ulceration in the small bowel with the development of these very thin diaphragms, and that can lead to not only iron deficiency anemia, but also small bowel obstruction.

Dr. Buch:

So let's move on to this one: what are the limitations of capsule endoscopy compared to push enteroscopy?

Dr. Leighton:

Yeah, so I will say that historically, the small bowel has been difficult to examine because it is so long and tortuous. But with the advent of capsule endoscopy and the ability to take pictures and videos throughout the small bowel, it really revolutionized our approach to evaluating the small bowel. The capsule endoscope was really made perfectly for the small bowel, and as I said, it really allows you to almost see the entire small bowel, from the duodenum to the terminal ileum. The limitations of capsule endoscopy, though, are the fact

that there's no way to control the capsule—endoscope as it's moving through, so if you see a lesion in one frame, there is no way to spend time and controlling the capsule so that you can examine it well. The other issue is because it can tumble through the small bowel, then you can potentially miss single mass lesions that may be missed because the capsule's camera doesn't see it in one frame or another. The other significant drawback is that if there is an occult stricture or blockage in the small bowel, the capsule could get retained in the small bowel and might need to be removed endoscopically or by surgery, depending on the situation. But I would say that those are the main limitations to capsule endoscopy. One other one that I will mention is localization software. If we do see a lesion on capsule endoscopy, it can be difficult for us to know exactly where it is in the small bowel. Those are the main limitations of capsule endoscopy. Now, if you compare that to deep enteroscopy, deep enteroscopy is more invasive, but it does allow you to examine the mucosa of the small bowel very carefully, and if you see a lesion, then you can spend time with to and fro motion to really examine the lesion and know how you're gonna treat it. The other benefit to deep enteroscopy, that capsule doesn't allow for, is therapeutic intervention, so if we find a polyp in the small bowel, we can potentially resect it, or if we find a bleeding lesion such as an angioectasia, then we can also inject and treat that as well with a treatment we call argon plasma coagulation.

Dr. Buch:

Now based on your experience, should we still be using technetium-label red cell studies to evaluate small bowel bleeding?

Dr. Leighton:

Yeah, that's another great question. I look at radiology techniques, including the red blood cell scans and CT angiography and triple-phase scanning, as complementary to both capsule and deep enteroscopy. So in most patients, we will start with capsule endoscopy, and if a lesion is identified, then we'll, in most cases, proceed with deep enteroscopy. However, there are a subgroup of patients where despite all that, they continue to bleed and we can't find the source, and where those patients are actively bleeding in a hospital setting, then the red blood cell scan can be useful, particularly if the patient continues to bleed, and then the scan is more likely to be positive. But in addition to red blood cell scanning, as one technique, we now have CT angiography and triple-phase CT angiography, that can help locate bleeding when capsule endoscopy and deep enteroscopy are not successful.

Dr. Buch:

Thank you. For those just joining us, this is *GI Insights* on ReachMD. I'm Dr. Peter Buch, and today I'm speaking with Dr. Jonathan Leighton about small bowel bleeding.

So, what are the challenges related to the clinical significance of some small bowel lesions?

Dr. Leighton:

Yeah, well as we discussed earlier, the challenge is that normally when patients present with bleeding, it's easy to identify the bleeding if it's in the stomach or in the colon. But when small bowel bleeding presents, either because the patient is noticing black stools or when they present with iron deficiency anemia, it can be a challenge to identify the source, and so you have to keep the small bowel in mind when patients present either with an acute bleed or iron deficiency anemia. And because these lesions can be elusive to find, we do recommend that you start with capsule endoscopy, and then, as I said, you may go on to deep enteroscopy or use other radiology techniques. But it's also important to remember that sometimes bleeding can occur – what we call obscured GI bleeding – and it may not come from the small bowel and could even be coming from the pancreas where you can have aneurysms that can bleed into the pancreas, and then the bleeding will come out through the ampulla of the pancreas. So it's important to know that bleeding can come from other sources. Another cause is, for example, an aortoenteric fistula, in someone who's had an aortic bypass graft. So it's important to remember that while angioectasias and tumors and ulcerating diseases of the small bowel are more common, it is important to think of other extra-intestinal causes for gastrointestinal bleeding. The other one that's very classic is, of course, a Meckel's diverticulum.

Dr. Buch:

So, Dr. Leighton, how would you approach a patient with suspected small bowel bleeding, but negative endoscopy, colonoscopy, capsule, and double-balloon enteroscopy?

Dr. Leighton:

Yes, that is a very challenging patient, and we see this fairly commonly. And this is a perfect example of where I might consider what we call a triple-phase CT angiogram, which just gives us a little bit more data, and in some cases, we will identify lesions that, again, were missed on the other procedures that you just mentioned. In addition, I think that in some patients, you may want to just be conservative and observe and treat their anemia with iron replacement or iron infusions rather than continue to do procedures. So in a small group of patients, watchful observation is sometimes the more wise clinical approach. But I will add if there is a patient that continues to bleed, then there is a sense of urgency, and sometimes it requires repeating those procedures again to make sure that you're not missing any lesions. In a significant number of patients, studies have shown that repeating upper endoscopy – what we call second-look endoscopy

– or repeating colonoscopy will identify a lesion that was previously missed, for example, in the stomach or in the proximal duodenum. So it is important to consider repeat procedures in those patients who continue to bleed.

Dr. Buch:

Thank you. And looking into the future, is there a role for hormonal therapy, somatostatin analogs, and thalidomide therapy?

Dr. Leighton:

Yeah, so medical therapy has not been very well studied, but there is evidence, that somatostatin analogs in particular and thalidomide therapy might play a role in a subgroup of patients, assuming they can tolerate any side effects. Hormonal therapy has not been shown to be very effective at this point, and so in addition to iron therapy that I talked about, some of these other therapies, like somatostatin analogs and thalidomide might play a role in the patient who you want to avoid doing additional procedures on. You feel confident that you've ruled out any serious abnormalities but you want to treat their anemia. And in those cases, medical therapy can be very effective.

Dr. Buch:

And lastly, Dr. Leighton, are there any other insights you would like to share with our audience today?

Dr. Leighton:

Yes, thanks. I think that we're looking to the future for significant technological improvements, and so better control of the capsule as it's moving through the small bowel, mainly using magnets, is something that we look forward to in the future to control the movements of the capsule. In addition, we're hoping that we can see better localization software so if you find a lesion on the capsule endoscope, you'll know better where it is. In addition, artificial intelligence – what we call AI –has really been tested extensively in capsule endoscopy, and this will also be of great benefit, so that we don't miss any lesions, and the artificial intelligence may also be able to shorten the reading times. Finally, they're even looking at capsule endoscopes for drug delivery and drug therapeutics, and again, this is an area that is currently being researched significantly. So a lot of exciting things happening in capsule endoscopy with regard to technological improvements, and I would say that I'm most excited about the artificial intelligence that is being studied.

Dr. Buch:

That's all the time we have for today. I want to thank Dr. Jonathan Leighton for sharing his expertise with us today. Dr. Leighton, it was great speaking with you today.

Dr. Leighton:

Well, thank you. I had a great time, and again, I really appreciate you having me today.

Dr. Buch:

For ReachMD, this is Dr. Peter Buch. To access this episode, and others from *GI Insights*, visit reachmd.com/GIInsights, where you can Be Part of the Knowledge. Thanks for listening.