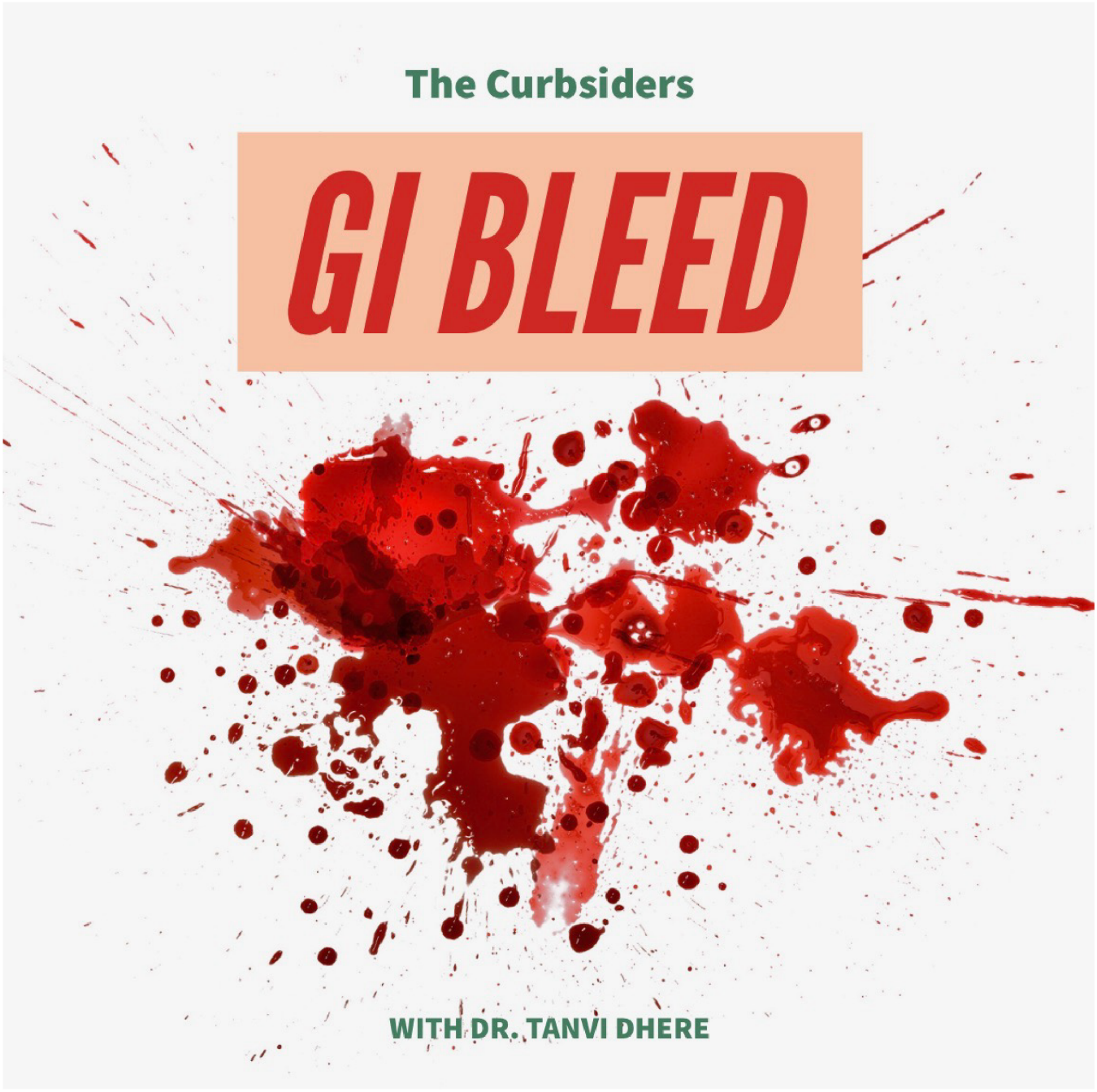
#355 GI Bleed with Dr. Tanvi Dhere



[The Curbsiders Podcast theme]

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Monee: And welcome back to Curbsiders, I'm Dr. Monee 'Got Money' Amin. And I'm joined by my co-host, Dr. Meredith Elizabeth Trubitt. And on tonight's show, we discussed GI Bleed with our guest, Tanvi Dhere. We will tell you a little bit about her here in a second. But first, Meredith, please remind the people what it is we do on this show.

Meredith: Sure Monee. We are *the* Internal Medicine Podcast. We use expert interviews to bring you clinical pearls and practice-changing knowledge.

Monee: Great, and we have a fantastic conversation with our guest, Tanvi Dhere. She is an associate professor at the Division of Digestive Diseases at Emory University. She went to medical school at the Medical University of South Carolina in Charleston. And upon completing your MD, she left for Chicago to join the residency program at Northwestern McGaw Medical Center. She returned to the south to complete her GI fellowship at Emory where she joined faculty upon finishing. During her training, Dr. Dhere pursued research and inflammatory bowel disease and continues to focus on much of her research in this area. She's particularly interested in ethnic differences as it relates to disease progression, treatment, and genetics. She's also trained in reading small bowel capsule endoscopy and has focused some of her research in this arena as well.

And she's super pumped to talk to us tonight, guys, and you will be able to tell in our conversation. She tells us a little bit tonight about the ins and outs of managing, diagnosing upper and GI bleeds. And then, some real fun pearls. Erythromycin is actually a thing. And CT and tagged red blood cell scans are actually frequently thought of in unstable patients which I don't think I realized before we had the conversation. So, a great episode for you tonight. So, let's get to it.

Meredith: But before we do, I just want to say that I hope this episode is cathartic, and we really make GI bleeds a digestible topic for everyone listening.

Monee: Okay, you're done talking.

Meredith: All right. Now, we can get started.

Monee: A reminder that this and most episodes will be available for free CME credit for all healthcare professionals through VCU Health at *curbsiders.vcuhealth.org*.

Meredith: And no tradenames were used when possible and a balanced range of therapeutic options was included in the discussion.

Okay, I think we've had enough technical difficulties. We can go ahead and get started. So, we've got a great guest, Tanvi is here. Thanks for coming on the show tonight. I guess we can go ahead and just jump on into some rapid-fire questions. So, Tanvi, do you want to start by just giving us like your one liner that you use to describe yourself?

Tanvi: Sure. So, I'm an academic gastroenterologist, associate professor in the division of gastroenterology. I'm a wife to a transplant hematologist and mother to two girls, two that are human

one that's a German Shepherd. I enjoy planning birthday parties for my girls and putting together family-themed Halloween costumes. During the pandemic, I took up tennis and I play on a team called The Mood Swings.

[laughter]

Monee: This sounds amazing.

[laughter]

We may have to get the deets on this later. That is some insane planning. I think someone that plans that much has probably learned to plan for any number of reasons. And I imagine some of that, if we take it back to academia, probably comes from some mistakes. So, would you mind describing maybe one of your favorite failures, if you will?

Tanvi: Sure. Um, so I guess it wouldn't really go in line with necessarily the planning for the Halloween costumes, but probably was dating back to high school, was my junior year in high school. And during that time, every year, a group of students would get selected to attend this academic governor school during the summer. And when I went into it, I thought I was going to be a shoo-in. I had worked so hard and had felt that I'd done so well academically that I was going to get selected. In order to get selected, we ended up having to go through an interview process with a bunch of teachers and unfortunately, I didn't get selected. I was one of the few students that ended up not getting selected and of course I was devastated, and very upset. When I talked to some of the teachers about what the issue was, they said academics are one thing, but it's really important to also kind of think about extracurricular activities and such outside of academics and so kind of scratched my head.

And then, the week after this happened, I happened to be walking in the hallways in our high school, and I came across a flyer for an audition for the school play. So, I ended up auditioning for the school play, and I ended up getting a part, it was a pretty decent part. And I think that just opened up the avenues for me to continue with acting. And the following year, the theater teacher really kind of took me under her wing and really encouraged me in so many different ways. And so, ended up getting a lead part in this play and ended up winning first state. So, it was the first time that our school ended up winning first in a theater competition of that nature. And I continued to do theater all the way through medical school, which was a lot of fun. But then, residency hit and fellowship hit and unfortunately, I didn't continue with acting after that. But certainly, I think it really helped me to develop as a person and I really enjoyed it. It was unfortunate that I didn't get into that governor school, but I think it was great and that I was able to find something else that I really enjoyed.

Meredith: I think that's a nice story and throwback to all the things. I think often when we ask the question, we think back to like you said, med school or residency or training. But it's nice to think back to those earlier times where you really probably did learn things that have been beneficial to you during training.

Monee: I think it's time. Speaking of women that I enjoy, Zooey Deschanel is New Girl, and Meredith insisted that I watch it. And so, I'm sure everyone out there that's listening already knows with the brilliance that is new girl, but what I discovered recently is a rewatch podcast called Welcome to our Show. It with Zooey Deschanel, her best friend on the show, Cece, Hannah Simone, and Lamorne

Morris who plays Winston. And it's really just fun. They talk through the episodes and share memories and you find out all sorts of hilarious things like how the producers tried to insist Zooey Deschanel and Hannah Simone have different haircuts because they're both women with brown hair, but they look very different. So anyway, really funny behind-the-scenes stuff. And, Meredith, you clearly gave me Pick of the Week in a way, I think you get to like close with your pick of the week.

Monee: Okay, I had one all planned out, but then I'm going to change it last minute. It's so good though.

Tanvi: Hate when you do this to me.

Meredith: I Peloton for the listeners out there and I did this incredible 2000s Pop ride this morning, and it was so good. It was like 45 minutes, first 15 minutes was like true pop, some Kelly Clarkson for you, Monee, Destiny's Child. It was really good. Then went into like some Eminem and Nelly. Throwback Nelly, am I right?

Monee: Yes.

Meredith: And then ended with like The Killers and Paramore. And it was a really good mix of everything, and it just brought me infinite joy this morning.

Monee: That's glorious.

Meredith: It is. So, I think we've gone off the rails enough so far. So, Monee, do you want to take us into our first case at Kashlak?

Monee: Absolutely. However, let it be known that there's two episodes in a row that it was not me that mentioned Kelly Clarkson. It was the other people. Thank you. Okay.

Case number one from Kashlak. Mr. Lopez. He's 56. He's got a history of hypertension, alcohol use remotely, and he presents to the emergency department with a two-day history of black stool. He notes some epigastric pain that began around the same time as the black stools. He's never had the symptoms before he doesn't drink coffee. He does, however, note that he's been taking ibuprofen three times a day for the past 14 days because he strained his lower back while playing tennis with his son. And on arrival to the emergency department, his vitals are notable for being hemodynamically stable, exam notable for mild epigastric tenderness to palpation, and his labs are notable for a hemoglobin of 12 from a baseline of 15, B1 is 14 and a creatine of 2.0, also around this baseline.

I think, Tanvi, I think we're kind of alluding to a pretty clear-cut upper GI bleed. Is there any information at this point that you want more from the history and physical that might help you solidify this?

Tanvi: Yeah, I think you're right. Based on the information that you provided in this case, it's pretty clear that this patient likely has an upper GI bleed. He's presenting with black stools, which we would say he's probably having melena. He's got a huge risk factor for development of upper GI bleed. Specifically, he's been taking NSAIDs. The epigastric pain could be suggestive of having peptic ulcer disease from taking the NSAIDs. The drop in the H&H of 3 g is fairly significant, be consistent with blood loss in the context of this clinical presentation. He also has an elevated B1 as well. And if we calculate the B1 to creatinine ratio, it's about 33:1. So, anytime I see a B1 to creatinine ratio greater than 30 to 1 in the setting of melena, I think about patient having an upper GI bleed.

So, some additional information that would be helpful would be, has he been having any hematemesis, be it frank blood or coffee ground emesis. Although the history seems to be suggestive of peptic ulcer disease, given that he's been taking ibuprofen, I'd also want to keep in mind potentially other etiologies that could lead to melena that could affect the immediate management for this particular patient. So, I'd want to assess specifically for risk factors for cirrhosis, which could lead to variceal bleed, esophageal varices, or gastric varices. So, I'd want to know about alcohol use, as well as other risk factors for cirrhosis.

Interestingly, in terms of lab values in patients that we may not suspect as having cirrhosis, just based on the history, sometimes the lab values can be helpful to identify somebody who may potentially have underlying portal hypertension. Specifically, if they have a low platelet count, that can be one of the earliest signs of portal hypertension. I'd also be looking at their coagulation parameters, their liver tests, as well as their white count. So, white count may be low in somebody who has portal hypertension. You mentioned that this patient has been taking NSAIDs. But I'd also want to ask about any additional over-the-counter medications that he may be taking. Specifically in the south, there are a couple of over-the-counter powder pain relievers that are sold, that can carry up to 1000 mg of aspirin per dose. And so, I'd want to specifically ask about those medications as well as the use of other NSAID or aspirin products.

I'd want to ask about nausea, vomiting, reflux symptoms. If they were having that, I'd be thinking potentially about reflux esophagitis, that can also present with an upper GI bleed. Typically, they present probably more with coffee-ground hematemesis than melena, but certainly a differential in somebody with an upper GI bleed. I'd also want to be asking about signs and symptoms that I would worry about the patient could potentially have a gastric esophageal malignancy. Specifically, I'd want to ask about weight loss, appetite loss, dysphasia. Although less likely, I'd also be asking this patient whether they had been taking any substances that could potentially cause their stool to look dark, like iron or Pepto-Bismol or licorice.

In terms of their past medical history, I'd be asking about renal disease or aortic stenosis which both are associated with AVMs, which can also present with upper GI bleed. I'd also be asking about previous abdominal surgeries, specifically upper GI tract surgeries such as a gastric bypass. Sometimes, patients can develop anastomotic ulcers with those types of surgeries as well as any type of bowel surgery, and those could potentially lead to melena or an upper GI bleed. I'd also ask about a history of AAA or any history of AAA repair, which can predispose to aortoenteric fistulas, and most commonly, we tend to seem in the duodenal. They classically present with what we termed as a herald bleed, which seemingly is a self-limited bleed followed by a massive hemorrhage, but certainly this can be quite life threatening and something I would not want to miss.

Monee: No, I think that really covers a good breadth of stuff all the way from cirrhosis all the way through like surgical things, which I think sometimes as internists we do a poor job of thinking outside of sort of our medicine box and sometimes even if we're hearing about a GI bleed and we hear NSAID, we kind of shut off our mind and don't keep it broad enough. So, I think that was really helpful to sort of go through that.

Now, all of that's fine and good. All the time, whenever I hear a resident call for back in admission about a GI bleed, the question about the guaiac stool testing comes up. So, how relevant are they? How useful are they? Do I need to stop hounding my residents about getting them, is the question.

Tanvi: Yeah, I think that's a great question. If you really want to rile up a GI specialist covering inpatient service, you just mentioned the words that the stool guaiac was positive. To be honest, the only real place to consider guaiac stool testing, I would say, is in the outpatient setting when you're discussing colon cancer screening and somebody who is at average risk for colon cancer. I don't really see a huge utility for using guaiac testing on the inpatient setting. Unfortunately, this test can be falsely positive. If a patient has something like epistaxis, hemoptysis, or maybe some type of inflammation, the GI tract, the quiet can be falsely positive, and may not really indicate a significant GI bleed and may inadvertently lead to additional testing that the patient may not need and potentially put the patient at risk from procedures that are somewhat invasive.

In addition, the test can also be falsely negative in patients who may have intermittent bleeding, or those patients with slow bleeding. On one side, it can be falsely positive, but another side can also be falsely negative. And at the end of the day, especially in a case like this where the positive predictive value for an upper GI bleed based on its clinical presentation is very high, I really don't think guaiac stool testing on an inpatient setting really changes the clinical management in the vast majority of cases. So really, at the end of the day, the best way to diagnose an upper GI bleed is by getting a really good history, a good physical examination, and assessing their serum lab values.

Meredith: Okay, that's super helpful. So, keeping all of that in mind, to us, I think, as hospitalists, it seems rare that patients would potentially get discharged home from the emergency room. But when we were reading, there are these risk stratification tools that you could use in order to determine if a patient needs to stay in the hospital for further management of this concern for bleed. Could you talk a little bit about those and when they're useful and how much we really should be using them?

Tanvi: Yeah, there are a couple of scores to sort of risk stratify somebody at risk of poor outcomes, who's presenting what signs and symptoms of an upper GI bleed. The one that's most commonly cited is the Glasgow-Blatchford score, which takes into account several variables including vital signs like blood pressure, heart rate, presence of melena, drop in H&H, elevated BUN, concomitant comorbidities including liver disease as well as heart disease. So, based on that particular scoring system, if a patient has a score of 0, those patients are at low risk of having adverse outcomes, and they could potentially be safely discharged from the ED.

So, how I would interpret that in a patient who may come in, let's say, with nausea and vomiting due to gastroenteritis, and maybe a third or fourth episode of vomiting, they vomit up some bright red blood, but when they come into the ED, they're dynamically stable, their blood pressure rate are all normal, their labs are all normal, they're not having any melena. it's pretty suggestive of a Mallory-Weiss tear, which often tends to be very self-limited and doesn't really lead to any significant further bleeding. So, in that particular patient, their Glasgow-Blatchford score would probably be 0, and that patient could potentially be safely discharged from the ED.

I think it's also important to note that when you're discharging a patient from the ED with any type of suspected bleed, it's really important to make sure that they do have some type of follow-up with the

gastroenterologist in a timely fashion. And if they needed further care, that they would have access to a hospital if needed.

Meredith: Okay. And just, I guess, going back to that score, it seems like there's a lot of things in it. So, it would be fairly difficult, I guess, then for someone to really score that low, right? It's not going to be likely.

Tanvi: You're right. Just with the presence of melena, that's a score of 1 and so those patients probably require admission.

Meredith: Okay, cool. So now we're going back to Mr. Lopez, he's like coming in, we've kind of established we're concerned about this upper GI bleed. So, thinking about kind of the first steps for management for him as a hospitalist, what are some of the things that we should be thinking about?

Tanvi: In terms of the first step in management, the first thing would be to consider the ABCs. We want to make sure that he is oxygenating well. We want to make sure that his blood pressure and heart rate are okay. And based on the initial presentation, it looks like he was hemodynamically stable. Regardless, I'd still want to make sure that he has adequate IV access, and so we'd want to make sure he has two large-bore IVs or a central line. Want to make sure that he gets typed and screened. We'd want to give him fluids if needed. At the time of presentation in a patient who I suspect an upper GI bleed, we're typically going to recommend starting a PPI IV, either doing a bolus with a drip or doing a bolus with intermittent dosing. And the reason that we do that is that studies have shown that by giving IV PPI, we can help to downgrade the severity of the ulcer, thereby decreasing the need for intervention as well as decreasing the length of stay. Although they don't necessarily decrease 30-day mortality rates or the need for surgery, there is some degree of benefit that would warrant the patient being started on a PPI.

In addition, in patients who may have a nonulcerated reason for an upper GI tract bleed, such as an AVM or a lesion that we term as a Dieulafoy's, by increasing the pH above 6, we can help to stabilize clot formation. So, it can be beneficial in patients who might not have peptic ulcer bleed.

In terms of what I alluded to before, whether we give intermittent IV dosing or whether we give a bolus followed by a drip there really is no difference between outcomes between both of those strategies. So, I would say either is reasonable. I would say giving intermittent IV dosing is probably more cost effective, rather than doing bolus infusion. So, dosing with 80 mg IV and then dosing 40 mg IV in 12 hours, I think, is very reasonable.

In terms of how to dose the PPI after endoscopy, it would depend on whether an endoscopic intervention is performed or not. For example, if the endoscopy goes in and they find an ulcer that's actively bleeding or maybe there's a nonbleeding vessel, the ulcer would be treated using some type of therapies such as injecting epinephrine along with using hemoclips or cautery. So, in these patients, we typically recommend keeping them on IV BID for an additional 72 hours before transitioning to PO. However, if the patient had a clean-based ulcer that wasn't showing any signs of active bleeding or had a visible vessel, I think it'd be reasonable just to start the patient on an oral PPI twice a day.

Monee: And that's without the 72 hours of IV following, to clarify?

Tanvi: Yes, that is correct. So, and somebody who has a clean based ulcer that didn't require any intervention, you can transition straight to IV PPI.

Meredith: Okay. And you alluded to it, obviously, once they come in starting this IV PPI but also pretty quickly getting them into endoscopy as well.

Tanvi: That's correct. In terms of timing of endoscopy, studies have shown that in patients who have a peptic ulcer that's bleeding or has blood, trying to do an upper endoscopy within 24 hours is probably the best for the patient. So, in this patient, trying to get them into an endoscopy suite within 24 hours, I think, would be warranted. In somebody who is showing signs of hemodynamics instability or if they're continuing to pass melena, I may want to do their upper endoscopy much sooner, of course, once they've been adequately resuscitated. So, it depends on the overall clinical picture and hemodynamics certainly play a huge role in terms of making that determination in terms of the timing of the upper endoscopy.

I would also add, and we kind of talked a little bit before about cirrhotic and patients with cirrhosis. So, those patients are at risk for esophageal varices and gastric varices, which can bleed and those unfortunately carry a fairly high mortality rate if untreated up to 20%. So, in those patients, that's another subset that I'd probably would want to consider being more aggressive about upper endoscopy, at least within 12 hours after they've been adequately resuscitated. And in terms of their treatment, we typically will still give them a PPI because certainly patients with cirrhosis may also have peptic ulcer disease. But in patients with cirrhosis, if I'm also concerned about potentially them having varices, we will typically start them on octreotide as well, as well as prophylactic antibiotics.

Meredith: And I guess that's a good segue. I think, Monee and I, when we were reading, going through the guidelines, we were also surprised about the recommendation for erythromycin, because, again, we've never really used it or seen it really used. So, could you maybe tell us if that's true, people are using it everywhere, or kind of what the recommendation would be?

Tanvi: Sure. I certainly think erythromycin is probably going to be more useful than a guaiac stool test on an inpatient setting. The benefit of erythromycin is that it's a promotility agent. So, it binds to motilin receptors in the stomach and can help empty the stomach that may be full of clot or blood debris. And so, this can help improve visualization. Unfortunately, oftentimes, it ends up being an afterthought. I may go in with an upper endoscopy in somebody who may have a fairly significant upper GI bleed and, I see a bunch of clots, and tell myself, "Oh, my gosh. I probably should have given this patient erythromycin or even metoclopramide, just to kind of help those contents move forward." Because if you can't get a good visualization, unfortunately, you may have to do the procedure again the following day once their stomach has been cleared.

Monee: Mind blown. Seriously.

Meredith: Yeah.

Monee: I've literally never used erythromycin. So, I feel like we just need to start handing it out. No, I'm just kidding. But--

Tanvi: [laughs]

Meredith: But is that how you would do it? Like patient comes in, they're going to get scoped the next day, when you start the PPI, just go ahead and give them the erythromycin dose? Or how would you dose it and do it?

Tanvi: Yeah, the best time to give erythromycin is just prior to the procedure, I would say somewhere between 30 to 60 minutes prior to the procedure. So, if I know if I'm going to be doing an upper endoscopy, I know sort of the approximate time, I usually ask the nurses on the floor in the ICU to give an IV infusion of erythromycin just about 30 minutes to one hour prior to the procedure.

Monee: I wonder if maybe if we check the pack you ordered or something, we might see it from time to time.

Meredith: Yeah. Now that you said that, that might be what happened/

Monee: I mean, it may not be the something that we order, so cool. Okay. What's, what we're talking about it? No, that was really helpful. So, we're going to move Mr. Lopez's case along a little bit. Overnight, he calls his nurse to bedside after he stands up to go to the bathroom and feels lightheaded. He can't get to the bathroom on his own as a result. His nurse checks his vitals, and he's found to be hypotensive and tachycardic. On further questioning, Mr. Lopez has been having two to three black, tarry stools for an hour for the past three hours. And a stat CBC reveals that his hemoglobin is now 8, recall that it was 12 when he first got here. So, this is the instability, I think, you were referring to. And I think you actually kind of already alluded to this, but it really does change the urgency of the procedure. Is that correct, when you have something like this happen?

Tanvi: You're exactly right. Certainly, this is really concerning. The patient has now become hypotensive, indicating that he's lost quite a bit of blood, probably at least 40% if this is as supine blood pressure. So, the patient needs to be in the ICU if he's not already there. I would say that this hemoglobin of 8 is likely an underestimation of what actually his hemoglobin is like right at that moment. The first things first though, however, this patient is hemodynamically unstable, they're hypotensive and tachycardic, we certainly want to resuscitate the patient, give them fluids, I'd probably go ahead and give him at least a unit of blood as well. And once he's been stabilized, and his blood pressures and heart rate are looking better, I'm going to mobilize the endoscopy unit and I'm going to give him some erythromycin probably as well and do the upper endoscopy as soon as possible. While I'm doing the upper endoscopy, just given the degree of blood loss, I'm also probably going to have an extra unit of blood hanging. I think in this patient-- and we'll talk about transfusion thresholds a little bit later. The goal of trying to transfuse only if their hemoglobin is less than 7, I don't think would really necessarily apply to this patient who's massively bleeding. So even though his hemoglobin is 8, again, it's important to note that this is likely an underestimation, and he probably needs blood transfusions.

Meredith: And so, we can go ahead and I guess talk a little bit about the transfusion. Let's say it's the instability that in his case is dictating his transfusions now. If, let's say, though, he had come in and his hemoglobin happened to be 8, but he wasn't unstable, then kind of what transfusion guidelines are you using at that point?

Tanvi: In terms of how we go about managing the need for blood transfusions in the current times, I think we tend to follow the recommendations as kind of proposed by the Villanueva study that was

published in the New England Journal of Medicine in 2013. So, in that particular study, they compared a cohort of patients with upper GI bleeds, who they randomized to either receiving a restrictive-based transfusion protocol versus more of a liberal-based transfusion protocol. So, in the restrictive transfusion group, patients were getting transfused only if their hemoglobin was less than 7. Versus the more liberal transfusion group, they were getting transfused if their hemoglobin was less than 9. What the researchers found was that the outcomes in patients who followed more of the restrictive strategy actually had better outcomes than those who were in more of the liberal strategy. So, if the patient was human and hemodynamically stable and had stopped bleeding, I think it's reasonable to follow that restrictive strategy.

An important thing to know in particular with that study was that it didn't include patients that had massive blood loss, such as the patient who becomes hemodynamically unstable. And it also didn't include patients who had had some type of cardiovascular event within 90 days of entry into the study. So, somebody who had underlying coronary disease that may have been active or somebody who had had a stroke, so those patients were excluded. Then, we kind of think about, well, if the patient had some type of underlying heart disease or cardiovascular disease or heart failure, and those patients, we may think about also being a little bit more liberal in terms of transfusing them. So, in somebody who has severe underlying coronary disease, I'll probably transfuse them to at least a hemoglobin of 8 to 9.

Monee: Is that only in active coronary disease, or is that in people that just have severe underlying disease? I guess that's what I've always kind of been confused about.

Tanvi: Yeah, I think that's a great question. I kind of find that it probably would pertain, based on that particular study, maybe more to patients who had active coronary disease, but I think in practice, we probably liberalize it to anybody that has significant coronary disease.

Meredith: Can I ask one other question?

Tanvi: Yeah.

Meredith: I think the other thing that comes up a lot is H. pylori. And I feel more recently, what I've seen is practice habit, and I don't know if this is what should be done is because they're getting scoped anyway, biopsies are often taken, and then that's how the H. pylori is getting tested at that point. But is there any role for us to really be doing like pylori stool test or breath test or anything like that?

Tanvi: Yeah, that's a great point. Certainly, anybody who has peptic ulcer disease will typically do gastric biopsies while we're doing the upper endoscopy to check for H. pylori. One important thing to note, however, is that sometimes the H. pylori testing can be falsely negative in the setting of a GI bleed. So, if I do the upper endoscopy and I find a peptic ulcer, either a gastric ulcer or a duodenal ulcer, and I do biopsies and the gastric biopsies don't show any H. pylori, I wouldn't say that's necessarily 100% conclusive that the patient doesn't have H. pylori. And I would strongly consider having the patient come back for follow-up as an outpatient and do testing again, using either urea breath tests or stool antigen for H. pylori, just to make sure that the gastric biopsy tests that didn't show H. pylori wasn't a false negative.

In terms of doing a stool H. pylori antigen in the hospital, again, the same issue holds true. So, if somebody is actively bleeding, the stool H. pylori antigen can be falsely negative. In addition, PPIs can

also render the test falsely negative as well. So, when we do H. pylori testing, at least on the outpatient setting, we typically have them hold their PPI for at least two weeks before we do the test.

Meredith: Okay, I will stop ordering those inpatient.

Monee: Yeah, man.

Tanvi: Yes. And hopefully, you're not ordering an antibody test either, serum H. pylori antibody tests. We should not be using that.

Monee: Feel like we're pushing all your buttons right now, Tanvi.

Tanvi: [laughs] You mentioned the guaiac task.

[laughter]

Monee: We're here to poke.

[laughter]

Tanvi: [unintelligible 00:35:59]. Great, and I'm here to teach and correct.

Monee: We very much appreciate it.

Tanvi: [chuckles] You're welcome.

Monee: So, Mr. Lopez, as we kind of talked about earlier, likely has peptic ulcer disease. We talked a lot about the other potential differentials, including H. pylori, and then of course, his NSAID use. And then, we talked about liver disease. I think the next piece, kind of coming back to transitions, would be sort of the post-procedure phase. So, we already talked a little bit about making sure that if they have a clean-based ulcer, they can go straight to orals if not 72 hours of IV. That part makes sense. I think the question that we always have, and this is just so I can sort of provide anticipatory guidance to my patients, is should they be expecting repeat scopes? And then based on what we find, how long will they be on the PPI?

Tanvi: Yeah, great question. In terms of repeating the upper endoscopy, in somebody who has a gastric ulcer, the concern is that whether the ulcer is necessarily a peptic ulcer, it could potentially be a malignant ulcer. So typically, in my practice, if I were to find a gastric ulcer on an upper endoscopy done for an upper GI bleed, I typically will do biopsies of the ulcer to check for any type of malignancy. With that being said, if there's anything on their history that I'm still potentially concerned, even if the biopsies were negative, that maybe the biopsies were falsely negative and to consider repeating it. For example, if they had a family history of gastric cancer, or if there were elderly, or if they were immigrants from countries where gastric cancer is highly prevalent like Japan or Korea, I may consider doing a repeat EGD just to make sure that that gastric ulcer is healed and that there was no malignancy. In somebody who has a duodenal ulcer, it's unlikely for that ulcer to be malignant. In those patients, I typically am not recommending a repeat upper endoscopy unless they're having continued symptoms or continued signs of anemia or bleeding that I'm worried that maybe the ulcer didn't heal with therapy.

And in terms of your other question, Monee, about PPI use, we typically recommend, for gastric ulcers, to keep them on a PPI for at least 8 to 12 weeks, and for duodenal ulcer for at least 4 to 8 weeks. So, the question comes up, is that something that they need indefinitely? And then, we have to kind of determine, well, what is their potential risk for developing an ulcer again in the future? So, if they have to be on aspirin, or if they say they can't get off of NSAIDs, then I'm probably going to recommend that they continue to take their PPI long term. But if they're able to stop their NSAIDs, or if they don't need aspirin, and they don't really have potentially any other risk factors for peptic ulcer bleeding being on anticoagulation or other reasons, then typically they don't need to continue the PPI. Now, if I don't have a clear-cut reason why they developed a peptic ulcer, meaning they weren't taking NSAIDs or aspirin or they didn't have H. pylori, and it's sort of this idiopathic ulcer, in those patients I'll also typically recommend continuing the PPI just to prevent the ulcer from coming back.

Meredith: Okay, that's helpful. Do you have anything else, Monee?

Monee: No, I think we probably need to summarize what we just did for the uppers. So, to summarize upper GI bleeds, the first step is making sure you have a good history and physical to help you kind of determine the etiology of the bleed. And then moving from there, I think the most important thing is determining their hemodynamic instability. I think we established that the actual number of the hemoglobin probably isn't as important as their overall stability in determining when they get scoped and what management they get. And then, we talked a little bit about the PPI IV drip versus intermittent bolus doesn't seem to matter as much, but it does need to be IV and then depending on what you find, they may need to be on it for 72 hours following the procedure. And then, as far as transitions of care, making sure that based on the etiology, the duration of PPI is kind of determined that way. Anything else to the summary, Meredith?

Meredith: I think Tanvi will kill us if we don't mention we should not be getting guaiac tests.

Tanvi: Please, and yes to erythromycin.

[laughter]

Monee: All right. Meredith, I think we're ready for case two.

Meredith: All right, case two, we got Ms. Morosi at Kashlak. She's a 61-year-old female with a history of diabetes, hypertension, Factor V Leiden, who's on rivaroxaban for prior clots. She presents with hematochezia over the past three days. Her home meds also include aspirin, amlodipine, and metformin. Notably, she's not complaining of any abdominal pain with her bowel movements, and no abdominal pain at all. She's never had this before. And in the ER, she's hemodynamically stable. Her exam is relatively unremarkable. The ER had already done, I guess, a rectal. She also just had the hematochezia. And her labs are notable for hemoglobin of 8.1, and her baseline is 12. So, kind of just like we did on the last case, is there anything else that you'd want to know kind of upfront for Ms. Morosi?

Tanvi: Yeah. So, I would say, probably the most likely etiology for this patient presenting with painless lower GI bleeding in the setting of anticoagulation is probably going to be a diverticular bleed side. So, I'd want to know when their last bowel movement was, because that could help to signify if the bleeding has stopped, or if the patient is continuing to bleed, because that may affect management. I would also

want to know what their bowel movements were like prior to this bleed. Had they noticed a change in their bowel habits? Were they having diarrhea? Because that could potentially signify maybe undiagnosed inflammatory bowel disease, which probably less common in somebody who's elderly, but certainly, elderly patients can certainly present with IBD in their later years. Or in terms of change in bowel habits, where they becoming more constipated? So, I'd be thinking about an etiology such as solitary rectal ulcer syndrome, which can lead to rectal bleeding. If they're having other significant changes in their bowel habits, I'd be worried about colon cancer. So, I'd also be asking about weight loss. I'd be asking about any additional over-the-counter medications besides aspirin, especially NSAIDs, because that can also be a risk factor for a lower GI bleed as well.

Given that the patient is 61, I hope that she's had at least one, if not two colonoscopies for screening purposes. So, I'd be curious to know what those showed. Does she have diverticulosis that was noted? If the patient may have had a colonoscopy just a few days prior to presentation, I'd want to know if she had had a large polyp that had to be removed. In that particular scenario, I'd be worried about a potential post-polypectomy bleed, which can also present with rectal bleeding. I'd want to also ask about travel history or risk factors for infectious etiologies as well to complete the history.

Meredith: That was a solid differential. So, I don't have anything to add.

Monee: No, definitely. So, I think we've established this as a lower GI bleed, and she likely needs an endoscopic evaluation. So, a couple things. I think the easy question is how do you determine who gets a scope, period? But I think the question that hospitalists always kind of have lurking in the back of their mind is, how do they know if it's going to be just a colon or just an EGD, or it's going to be both on the day of? I guess that's kind of where I'd like to start. Like, we know we need to scope, what helps you decide the combination or not combination?

Tanvi: Sure. Yeah, in this particular patient who's presenting with hematochezia, but appears to be hemodynamically stable, I think what you're alluding to is whether we would consider doing an upper endoscopy to evaluate whether the patient could potentially be having bleeding from the upper GI tract. With lower GI bleeding or hematochezia, about 10 to 15% of patients may actually have upper GI bleed. And certainly, she has risk factors, being on aspirin, on anticoagulation. Typically, these patients are quite hemodynamically unstable. So, I'd have a low suspicion that this patient has an upper GI tract bleed. So, I probably wouldn't be running or recommending doing an urgent upper endoscopy. This patient certainly needs a colonoscopy. So, I'd certainly go ahead and start talking to the patient about getting prepped and starting the cleanse so that we could do a colonoscopy within the next 24 hours.

Meredith: And when you hear this type of story that seems very classic at least for a lower GI bleed, is it fair for, I guess, the hospitalist to just go ahead, order the prep, because it seems like we're going to head down a colonoscopy route? Or would you wait till GI actually where to see the patient and determine what they need and when that might happen?

Tanvi: I think that's a great question. With lower GI bleeds, typically, we tend to see them in older patients who could potentially have additional comorbidities, which may play a role in terms of how we go about managing the patient. We certainly want to make sure that the patient could tolerate doing a colonoscopy, being put under anesthesia, and having the procedure done, so I certainly would wait to

talk to the gastroenterologist before I start preparing the patient. But certainly, I think it'd be reasonable to tell the patient that there's a strong possibility they may have to have a colonoscopy.

The other caveat to consider is this patient certainly had never had a lower GI bleed before. But in many patients with diverticular bleed, they've had issues with diverticular bleed in the past as well. So, doing another colonoscopy is unlikely to be beneficial. So, in somebody like that who we know jhas had a previous diverticular bleed and is coming back in with a bleed again, I'd probably move forward with doing some type of imaging tests to help localize the bleed, maybe a CTA potentially, rather than going straight towards a colonoscopy.

Meredith: Can we talk a little bit about CTAs and tagged red cell scans and when they're useful, and kind of at what point they may be used, or actually not so useful for us to be getting?

Tanvi: Yeah, sure. I would say in terms of when it's not useful, it's probably not going to be useful if the patient is not actively bleeding. So, the patient has to be actively bleeding in order for the test to be positive. In terms of when we'd want to consider doing that over a colonoscopy, it's probably going to be in the patient that presents with their first episode of lower GI bleeding, who's hemodynamically unstable, and we don't really have a long time to have the patient do a colon cleanse or a colon prep. Maybe potentially the patient is hemodynamically unstable and it's hard to resuscitate the patient adequately to be able to tolerate a colonoscopy. So, in those patients, I'd probably be thinking about doing some type of imaging test like a CTA, or a tagged RBC scan, or maybe even going ahead and involving my interventional radiologists and sending them straight to angiography. The benefit of going directly to IR with angiography is that not only can the interventional radiologist diagnose the bleed and find where the bleed is, but they can also stop it as well. However, there are concerning risks associated with doing angiography, specifically ischemia. So, I'd want to be very mindful or very careful and selective in those patients that I would recommend that strategy.

Monee: Yeah, I read that it was like up to 4% of people can get significant necrosis. So, that seems like something we probably shouldn't just kind of willy-nilly throw out there.

Tanvi: Right, and then the other issue too as well as contrast too as well potentially giving them a large load of contrast, that could also hurt the kidneys too as well and cause an AKI, so we'd also want to be mindful of that, especially if they have underlying renal insufficiency.

Meredith: And is there any role that like a CTA is better than a tagged red cell or vice versa?

Tanvi: I think there are risks and benefits of both. I think CTA is great just because they're quick. You can get the results fairly quick. Also, compared to a tagged RBC scan, a CTA can give you a better anatomic delineation of where exactly the bleeding is coming from. Versus a tagged RBC scan can kind of approximate where the lesion is or say that the patient is having active bleeding. But in terms of actually localizing where the bleeding is, it doesn't do as great of a job as a CTA necessarily. However, again, kind of going back to issues with renal insufficiency, by doing a CTA, especially in somebody who has underlying kidney problems, and then also they may have some degree of prerenal azotemia from having active upper GI bleed, I would be concerned about giving them a large volume of contrast. So, maybe in certain patients, a tagged RBC scan may be more beneficial and less risky over a CTA. But in my practice, I think in most patients, we typically will try to use a CTA for the very reason that it's

quick and then it does a much better job of localizing where exactly the lesion is compared to a tagged RBC scan.

Meredith: And I think you already said this, but just to be clear, then, for the most part, unless they're really unstable, you just don't have a whole lot of time, you would still get either probably like a CTA or a tagged red cell scan before sending them to IR. If those tests came back localizing an area, then you would send them to IR?

Tanvi: That's correct. Yeah, and I think it's important to have the discussion with the interventional radiologist. If I feel that maybe potentially the patient would benefit going straight to IR versus doing a CTA first, prior to doing that, I would have that distinction first with the interventional radiologist. And there's a strong possibility they may not necessarily agree with my recommendation, and they may recommend doing a CTA prior to having the patient come down to the IR suite for an angiography. So, it's important just to have an open dialogue, consulting the specialist too as well before making the final decision as to what you think would be best for the patient.

Monee: Yeah, and I think just keeping in mind with your hospital or your particular branch of Kashlak resources are is also always important to keep in mind.

Tanvi: True, very true.

Monee: So, you know, let's say that Ms. Morosi instead has found to have diverticular bleed after having her procedures. It seemed in reading that, unlike upper GI bleeds, we don't tend to have a lot of like medical options for patients. Is that a fair statement?

Tanvi: Yeah, we don't really have, I would say, a great medication to necessarily stop diverticular bleeds. Sometimes with colonoscopy intervention, in rare cases, can we identify the particular diverticulum that may have blood and we could potentially treat it mechanically by clipping the area, but it's quite rare that we are able to find and treat the lesion. From a medical perspective, however, I think particularly if you look at this case, I'd want to reevaluate and determine whether this patient needs their anticoagulation, along with their aspirin. Certainly, this patient has Factor V Leiden deficiency. So, there is risk for thrombosis. So, they certainly need to continue with their anticoagulation. But I would question if she really needs to be on aspirin. I didn't hear anything in her history that she has underlying coronary artery disease. So, it seems like this is being used primarily for primary prophylaxis rather than a secondary prophylaxis. So, maybe we could potentially take the patient off aspirin, which could potentially decrease the risk of further diverticular bleed.

Monee: Kind of risk stratification.

Tanvi: From a medical perspective, I think that's one that-- risk stratification Exactly.

Monee: And then when is it that we should think about referring to surgery for some sort of surgical procedure, colectomy, I guess?

Tanvi: Yeah, well, I think in any patient who is coming with a lower GI bleed that just doesn't appear to be stopping on its own, so most diverticular bleeds end up stopping on their own, but in some scenarios, they keep continuing, just stop and start stop and start bleeding when they're in the hospital.

In those patients that continue to bleed or continue to require blood transfusions, and it's difficult to being able to localize the lesion or maybe you localize the lesion and treated it, but the patient continues to bleed, I think it's 100% reasonable to get the surgeons involved for helping manage that patient. It's important to note though that the surgeons are going to want to have some type of positive scan before they take the patient in the OR and the last thing you would want is not to have a positive scan and the patient goes into the OR and has their colon taken out but inadvertently, you realize afterwards that maybe the bleeding was from the small bowel or in a different location. So, the surgeons would ideally want to have a test that identified where exactly the bleeding was before they can start taking the patient to the operating room.

Meredith: Okay, I think that was a good segue to also, let's say, Miss Morosi, we didn't find the diverticular bleed and we wanted to get some better pictures too of small bowel to see if that's where she's bleeding from. Could you talk a little bit about kind of the role for capsule endoscopy, either inpatient, outpatient, and when kind of to consider either/or?

Tanvi: Yeah, that's a great question. Typically, we would recommend doing a pill camera in a patient who's continuing to bleed despite having a negative colonoscopy. In addition, they probably should have had a negative upper endoscopy or another procedure, which we call push enteroscopy, which basically is an upper endoscopy that allows us to look deeper into the upper small intestine. So, in scenarios where the patient is continuing to require blood transfusions, continuing to have hematochezia, I think it's 100% reasonable to do an inpatient pill camera test.

In somebody who may have stopped bleeding and has not bled in 48 hours, think it'd be reasonable to consider doing an outpatient pill camera test just to make sure that there's no evidence of significant pathology in the small bowel. So, things that we may potentially find in the small bowel include AVMs, small bowel tumors like neuroendocrine tumors, those things can also cause significant GI bleeding as well. So certainly, something we'd want to make sure that the patient doesn't have in terms of managing them.

Meredith: Okay, now kind of thinking about transitioning Ms. Morosi back to her outpatient, let's say her bleeding stopped and we are going to set her up for like outpatient capsule endoscopy. You already sort of talked about specifically for her what we would do with anticoagulation and her antiplatelet therapy. Is there any other guidance you would give in general, considerations that as a hospitalist we should be thinking about for her or for any ones like anticoagulation or antiplatelet therapy?

Tanvi: Great question. When we think about how we go about managing anticoagulation and antiplatelet therapy in the hospital setting, I think we have to risk-stratify the patients. It's not necessarily a one-size-fits-all type of picture. So, there are some patients maybe we're not able to completely hold their anticoagulation when they're actively bleeding. Maybe they have a saddle embolus or maybe they had a recent coronary event, we can't stop their anti-platelet therapy. So, we have to take into account those factors when we make a judgment call about whether we continue their anticoagulation or antiplatelet therapy, or whether we hold it. In a patient like this, I think it'd be reasonable to hold her anticoagulation, and can transition her to a heparin drip just because you have the ability to stop it if she starts bleeding. If she doesn't continue to bleed, I think it's reasonable to resume her anticoagulation within four to seven days after the inciting event.

Monee: And just to make sure that we know this for our listeners, these are more like expert opinion type things than they are guidelines, correct? With the sort of resumption or not, that sort of stuff?

Tanvi: That's correct. We don't really have great guidelines in terms of how to go about managing anticoagulation post lower GI bleed or even post upper GI tract bleed. There are different case series that have been performed to sort of look at risk-stratifying or looking at outcomes when you have a patient who has been on anticoagulation, you stop it or resume it or don't resume it. And so, I think there have been different studies that have been looked at. Some say that starting within four days or within seven days is probably more beneficial than not starting it at all because you can potentially increase the risk of a thrombotic event and certainly in a patient like the one that we discussed, the 61-year-old patient who was on anticoagulation, I'd certainly worry about development of thrombosis. So, if possible, if she's not had any further bleeding, and certainly, in conjunction with the physician who's managing the anticoagulation, I would have a risk-benefit discussion and make the judgment call or think about when would be a good time to resume their anticoagulation. But based on some literature that we have, and again, case series, one would say within four to seven days would be a reasonable timeframe to resume anticoagulation.

Meredith: Okay. So, I think in general, it sounds like patient comes in, you're concerned about lower GI bleed. If the patient is stable, then your goal would really be to try to get them to a colonoscopy, prep them in house, get them to the colonoscopy relatively quickly. If the patient though is more unstable looking, then that's when you would kind of go down the pathway of alternative imaging modalities, whether that be a CTA, or a tagged red cell scan based on what your facility may have available resource wise. And only in I guess the case is really where you're not finding that lower GI bleed would you start going and considering options like capsule endoscopy at that point. And based on what you find overall, it's going to be very patient dependent as to what you do for restarting any anticoagulation or antiplatelet therapy. Anything else, Monee?

Monee: Yeah, surgeons just want proof before they start cutting things.

Meredith: Which is fair.

Monee: Completely fair.

Monee: I think that's a fair assessment.

Meredith: All right, Tanvi, do you want to maybe give us any take-home points from all of the cases for our listeners that you really want them to know?

Tanvi: Yeah, I think anytime you're managing a patient who is actively bleeding, just remember your ABCs, number one. Make sure that the patient is adequately resuscitated. Going straight to a scope may potentially be more harmful in somebody who's in hemodynamically unstable. Certainly risk-stratify the patient. Think about patients who may be at risk for worse outcomes, patients who may need more urgent endoscopy. Certainly, there are patients that may be able to wait 24 hours to get their procedure, but certainly there are patients that may need to have more urgent procedures. In terms of managing these patients, it often requires a multidisciplinary effort to as well. So, in conjunction with the hospitalist team, the GI team, potentially radiologists, interventional radiologists, and surgeons, it's important to involve all appropriate consult teams when making the right decision for your patient as well.

Meredith: All right. This has been another episode of the Curbsiders bringing you a little knowledge food for your brain hole.

Monee: Yummy.

Meredith: Get show notes at *thecurbsiders.com* and sign up for our mailing list to get our weekly show notes in your inbox. Plus, twice each month, you'll get our Curbsiders Digest recapping the latest practice-changing articles, guidelines, and news in internal medicine.

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Meredith: And I've been Meredith Elizabeth Trubitt. Thank you and good night.

[music]

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