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## Addressing the Unique Cases of Portal Vein Thrombosis

### Dr. Buch:

This is *GI Insights* on ReachMD. I'm your host, Dr. Peter Buch. And today, here to discuss portal vein thrombosis, or PVT, is Dr. Shilpa Junna. Dr. Junna is a Transplant Hepatologist and an Assistant Professor at the Cleveland Clinic.

Welcome to the program, Dr. Junna.

### Dr. Junna:

Thank you so much for having me. It's very exciting to be here.

### Dr. Buch:

Pleasure to have you. So to start us off, Dr. Junna, can you describe the clinical features of portal vein thrombosis?

### Dr. Junna:

Yes, absolutely. So symptoms are primarily driven by the extent of the obstruction that the portal vein thrombosis is causing, and some of it is also driven by how quickly the thrombosis has developed. Some of the symptoms you can see can be nonspecific. Patients may present with complaints of abdominal discomfort, general sense of unwellness, fatigue, nausea, vomiting; and then there are also patients who may have no symptoms at all and you find the thrombosis incidentally.

There is a condition acute pylephlebitis, which can cause portal vein thrombosis, and in those situations, you may see patients present more with a septic picture or with fever and chills. And if the thrombosis has been there for some time, you're more likely to see sequelae of portal hypertension, including ascites or variceal bleeding, and patients may also have mild elevation in their AST and ALT as well on blood work.

### Dr. Buch:

Thank you. And which conditions are related to PVT?

### Dr. Junna:

So I think, of course, you definitely should consider cirrhosis as a potential cause of PVT. We do know that you can see portal vein thrombus in up to 20 percent of patients that are being worked up for liver transplantation that have decompensated cirrhosis, and you can see it in one percent of patients with compensated cirrhosis, so those patients who don't have ascites history or variceal bleeding. But another thing that's very important is to exclude hypercoagulable disorders, and those can increase the risk of portal vein thrombosis, as can malignancy, so we can see tumor thrombus in the portal vein in cases of infiltrative HCC or cholangiocarcinoma. And so what we really recommend is that all patients, especially those without a known history of cirrhosis, should undergo a hypercoagulability workup.

And the most common cause of noncirrhotic portal vein thrombosis is related to Jak2 mutations and myeloproliferative neoplasms, and these can contribute to clotting. We can actually see myeloproliferative neoplasms, such as essential thrombocythemia in 25 percent of cases of portal vein thrombosis that are not related to cirrhosis, and use of oral contraceptives in pregnancy, due to the high estrogen state, can also increase the risk of PVT.

So in general, we also can consider consultation with our hematology colleagues to guide us through this hypercoagulability workup, but it's important to know that you should check for some of these genetic conditions, such as Factor V Leiden mutations, antithrombin deficiency, prothrombin mutations, and so on just to be sure that you are covering all of your bases and trying to identify the cause of PVT, especially in patients without cirrhosis.

**Dr. Buch:**

So with that in mind, what are the best practices for diagnosing a patient who you might suspect might have PVT?

**Dr. Junna:**

So I think one of the best imaging studies that we have available is the ultrasound Doppler, which luckily, is found at most tertiary care centers, ambulatory centers as well, and is a quick and simple study that can give you a lot of information on whether someone has portal vein thrombosis, and it also allows you to gain an assessment of how blood flow is to a patient's liver. It can also identify splenomegaly, which can indicate that the portal vein thrombosis is leading to portal hypertension as well.

In some situations, you can gather a lot of information from the ultrasound Doppler itself, but I do want to mention that you may have to follow this up with contrast-based imaging, whether that's a CT scan of the abdomen or an MRI venography. And you should have a discussion with all of your patients about how additional imaging may be required if the Doppler ends up showing and demonstrating presence of portal vein thrombosis. And the main reason for this is to really understand the burden of the disease, see if the portal vein thrombosis has extended to other vessels, such as the mesenteric vein, which could increase a patient's risk of having mesenteric ischemia, but having cross-sectional imaging also allows us to get a better understanding if there is an underlying malignancy. Oftentimes, ultrasound may not demonstrate an infiltrative HCC or a cholangiocarcinoma, which is really important in how you guide your management of the portal vein thrombosis.

**Dr. Buch:**

Thank you for that. Let's move on to this one. How would you approach a patient who is found to have portal vein thrombosis when investigating another illness?

**Dr. Junna:**

I think that this comes up more often than we think, so thank you for asking the question. I think that in cases of cirrhosis when we are doing an ultrasound Doppler, for example, we may have a patient who is coming into established care in our liver clinic, and we end up doing an ultrasound more so to complete hepatocellular carcinoma screening, and then we incidentally find a portal vein thrombus. I think in those situations, you may have to evaluate if the thrombus appears to be acute or chronic. We have several patients who come to us whom we incidentally find a chronic portal vein thrombus, for example.

One of the ways that you can distinguish between an acute or a chronic portal vein thrombus on Doppler or on cross-sectional imaging is to look for the presence of collateralization of the portal vasculature, so literally meaning that the portal vein has tried to make other highways, so to speak, for blood flow to go through. You can also assess for splenomegaly, other signs of portal hypertension, which can tell you that the clot may have been there for some time. You should also look at if the clot is completely occluding the portal vein. So oftentimes, our imaging will tell us that there's a completely occlusive nature to the clot or a partial occlusion.

In cases of partial occlusion, we often don't pursue anticoagulation or treatment unless the patient is having complications of portal hypertension, and this is really evaluated on a case-by-case basis. So in those situations where you do find a portal vein thrombus incidentally, the first thing that I do is to try to assess if there's collateralization, if there's other features on imaging that look like the portal vein thrombus has been there for quite some time. And if it's acute, we talk to patients about anticoagulation.

Typically, we pursue discussion regarding anticoagulation with either Lovenox or warfarin for at least three months, and then I always discuss with my patients that we have to reimaging to see how the portal vein thrombus may look on imaging after that three-month period.

**Dr. Buch:**

Thank you so much. For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and I'm speaking with Dr. Junna about portal vein thrombosis.

So moving on, Dr. Junna, anticoagulation is often the initial therapy for acute PVT. But how should we approach a patient who also has varices?

**Dr. Junna:**

This is a great question, and I think we run into this often. And I have seen cases where anticoagulation has been deferred because of presence of varices, but there are a couple of different approaches that we can take in situations like this. If there's varices on imaging, there has to be an understanding also that you may not be able to identify these varices endoscopically. So you can do one of two things. You can screen these patients for varices with endoscopy, and depending on your preference, either serially band varices that are large enough to undergo prophylactic banding or you can start a nonselective beta blocker.

And I often prefer carvedilol because it also has the added benefit of decreasing intrahepatic vascular resistance and that is a benefit

that is not present with the other beta-blockers, and it also works on promoting splanchnic vasoconstriction to decrease portal pressures in the portal vein. Another method that you could use is, if you believe that the patient has several other comorbidities and feel that they would be at a higher risk of undergoing screening endoscopy, you could go ahead and start carvedilol or another nonselective beta-blocker just to help prevent bleeding from any varices that may be present and also prevent the risk of decompensation from cirrhosis.

**Dr. Buch:**

Thank you. So, Dr. Junna, what other therapies are available for patients with PVT?

**Dr. Junna:**

So I think we briefly touched on anticoagulation. I think that Lovenox or warfarin are the two medications that have the most literature, but we do know that direct-acting anticoagulants do have some role in treating portal vein thrombosis in patients with cirrhosis, but we just don't have as much data for those agents as we do for Lovenox and warfarin.

Lovenox is often preferred, particularly in patients who have ascites and may require a serial therapeutic paracentesis because you don't have to worry about holding the Lovenox given the twice-a-day dosing that's associated with Lovenox and the quick reversal on its own with just holding the morning dose of Lovenox, for example, in a patient who's going to come in later in the day to undergo paracentesis. It's also preferred in patients who have renal dysfunction.

Warfarin can be used as well, but it does create some confusion in some instances of causing false elevation of INR, and that may make it difficult for us to understand the degree of coagulopathy that a patient may have in cirrhosis.

If the patient is not a candidate for anticoagulation or does not wish to use the anticoagulation, we can consult our interventional radiology colleagues to discuss the options of thrombolysis or thrombectomy. And in patients who have very severe symptoms of portal hypertension, we can consider referral for a TIPS procedure as well to help more with the complications of the portal hypertension. In some of those cases, we also use thrombectomy with TIPS to first help dissolve the clot or use a stent to expand the portal vein and then place the TIPS.

**Dr. Buch:**

And in the last few moments of our discussion, is there anything else you would like to add?

**Dr. Junna:**

I think the main thing that I would like to relay to the listeners is that portal vein thrombosis is fairly common in cirrhotics, but it's really important especially in patients without cirrhosis to assess for other hypercoagulable conditions. And I think the role of our colleagues, the hematologists and interventional radiologists, in helping to address this condition is very important, and every case is unique, and this collaboration can really help us to take best care of our patients case by case.

**Dr. Buch:**

This has been a great conversation, and I want to thank my guest, Dr. Junna, for providing her insights about this important topic.

Dr. Junna, thanks so very much for joining us today.

**Dr. Junna:**

Thank you for having me. It was a pleasure.

**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 looking forward to learning with you next time.