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## Chronic Deep Vein Thrombosis (DVT) and Post Thrombotic Syndrome (PTS): What Physicians Need to Know

Narrator:

Welcome to Medical Breakthroughs from Penn Medicine: Advancing Medicine through Precision Diagnostics and Novel Therapies.

Dr. Mennen:

You're listening to ReachMD, and I am your host, Dr. Barry Mennen, and joining me today is Dr. Deepak Sudheendra, Assistant Professor of Clinical Radiology and Surgery at the Hospital of the University of Pennsylvania - Perelman School of Medicine. And today, we will be discussing interventional radiology, chronic deep vein thrombosis, or DVT.

Dr. Sudheendra, welcome to ReachMD.

Dr. Sudheendra:

Thank you, Dr. Mennen, for having me.

Dr. Mennen:

Our pleasure. Let's start off. What is the difference between acute, subacute and chronic deep vein thrombosis?

Dr. Sudheendra:

Acute DVT is defined as thrombus within the deep veins that is generally up to 14 days of age. Subacute DVT is generally between 14 to 30 days of age, and chronic DVT generally consists of thrombus that is 30 days or older. Now, that is generally what we could call the textbook answer; however, thrombus can be in various forms of organization in a particular patient, and so a patient can have some areas of the clot that are chronic in nature and some parts of the clot that are acute or subacute in nature.

Dr. Mennen:

So, that would naturally be relative to the timing, so the oldest part is chronic, etc., etc., as we move on.

Dr. Sudheendra:

Correct.

Dr. Mennen:

And what are the complications of DVT?

Dr. Sudheendra:

The main complication that we worry about with DVT is the progression to pulmonary embolism. Outside of pulmonary embolism, the complications that are of concern is the development of chronic venous hypertension, or what is known as postthrombotic syndrome.

Dr. Mennen:

Now, what is the scope of postthrombotic syndrome, or PTS, and why is it important to treat PTS?

Dr. Sudheendra:

Postthrombotic syndrome is mainly seen in patients who have developed extensive DVT, and extensive DVT usually consists of iliofemoral DVT and sometimes can include femoral popliteal DVT as well. Postthrombotic syndrome can develop in up to 50% of patients with iliofemoral DVT, and that includes patients who do receive anticoagulation fairly early on. Now, the economic burden of postthrombotic syndrome and the psychologic burden and, also, the disability that occurs from postthrombotic syndrome is really quite dramatic, and the vast majority of postthrombotic syndrome is not treated for a variety of reasons, which we will get into later. However,

postthrombotic syndrome is something that develops over time, over 3 to 5 years from the onset of deep vein thrombosis, and if it's caught early, there are things that can be done to at least halt the progression of postthrombotic syndrome or possibly prevent it from occurring completely.

Dr. Mennen:

Now, why is PTS, as you mentioned, and venous disease, perhaps, in general, not treated or ignored?

Dr. Sudheendra:

Well, I think there are several reasons. I believe the main reason that venous disease, in general, is ignored is because there really is a lack of education in the medical community and amongst the general public about venous disease. For example, let me ask you, if you think back to medical school and being in anatomy class, do you recall being asked about the veins in anatomy class?

Dr. Mennen:

Just the big ones. Not too much, absolutely not.

Dr. Sudheendra:

Right, it was really just the main ones like the vena cava and the internal jugular vein.

Dr. Mennen:

Portal, the portal vein, yes.

Dr. Sudheendra:

And that was really about it. And most of the focus is on arterial disease, and that's rightly so because we know what the complications are of arterial disease, not only from a cardiac standpoint but from a stroke standpoint, but generally, the veins are ignored. And so the way I look at it is if you have a whole generation of physicians who are not really taught about venous disease and the pathology associated with venous disease, how are those physicians going to recognize the venous pathology in their patients? So, I think, first and foremost, it stems from education. Secondly, there is a perception that venous disease and the problems with postthrombotic syndrome are really a cosmetic issue only, and that is really far from the truth. The vast majority of patients that come in for the treatment of venous insufficiency come in because they have heavy, tired legs, night cramps, restless legs. The cosmetic result after treatment really is a secondary benefit. And when you look at postthrombotic syndrome, the main issue is that most patients are often told that there is really nothing that can be done for their symptoms and that this is a complication that has occurred and a patient just has to learn to live with it, perhaps wear some compression stocking.

Dr. Mennen:

If you are just tuning in, you are listening to Medical Breakthroughs from Penn Medicine on ReachMD. I am your host, Dr. Barry Mennen, and I'm speaking with Dr. Deepak Sudheendra, Assistant Professor of Clinical Radiology and Surgery at the Hospital of the University of Pennsylvania - Perelman School of Medicine.

May-Thurner syndrome is not an uncommon cause of DVT. Can you describe what exactly May-Thurner syndrome is and why it's important to recognize this condition in terms of preventing the complications of DVT?

Dr. Sudheendra:

Yes. May-Thurner syndrome is the compression of the left common iliac vein by the overlying right common iliac artery and the spine posteriorly, so the left common iliac vein actually gets sandwiched between the artery and the spine. It can be seen in both men and women, but it's more commonly seen in women, and so any woman who presents with extensive iliofemoral DVT in the left lower extremity needs to be evaluated for May-Thurner syndrome. And the reason is, is the treatment is actually angioplasty and stenting, not just putting a patient on anticoagulation. Because there is a narrowing there of the vein, there is an actual mechanical blockage or obstruction, and if that obstruction is not relieved, the patient can present with recurrent DVT over time, and each time the patient presents with recurrent DVT, physicians are often perplexed because they are wondering, "Why is this patient getting all of these recurrent DVT? We can't find a cause for it." And the whole time it's due to this obstruction that hasn't been addressed.

Dr. Mennen:

They have done hematologic workup, probably.

Dr. Sudheendra:

Correct, correct, and that's negative, but the mechanical issue hasn't been addressed. And this is something that can be evaluated with a CT or an MRI; generally, ultrasound. It's difficult to evaluate that area in most people. So, if it is found that a patient does have May-Thurner syndrome, that can be treated with angioplasty and a stent, and once it is treated, a patient could conceivably go off of blood thinners after they finish their 3- to 6-month course of blood-thinning medication. And to me, that is profound, because otherwise,

someone can be on blood thinning medication for the rest of their life.

Dr. Mennen:

Absolutely. It sounds like a board question.

Dr. Sudheendra:

Yes.

Dr. Mennen:

Now, why is Penn one of the leading centers for the management of DVT and postthrombotic syndrome?

Dr. Sudheendra:

Well, here at Penn we have a multidisciplinary approach to DVT that includes specialists from interventional radiology, internal medicine, hematology, physical therapy, podiatry, so we have a lot of different players that really come together to help the patient that is suffering from postthrombotic syndrome. In addition, we do a lot of very advanced endovascular techniques to open the deep veins of patients who have chronic scarring from DVT. Sometimes patients have come in with complete occlusion of their vena cava from an IVC filter, and we are able to not only remove filters that other places have been unable to do, but we're also able to completely reconstruct the inferior vena cava, the iliac veins, and this often leads to a significant reduction in symptoms for the patient. Many times they can be life-altering for the patient in a good way.

Dr. Mennen:

So, what treatments are offered at Penn for patients with chronic DVT and PTS?

Dr. Sudheendra:

So, most of the treatments center around an endovascular approach to postthrombotic syndrome. Most of these procedures involve angioplasty and stenting of the iliac veins, sometimes the vena cava. We also do a lot of what is called DVT thrombolysis, or mechanical thrombolysis, where we will go in and inject some tPA to lyse the clot and also use various mechanical devices to grind up the clot and evacuate the clot. In addition, for those patients who may have their deep system may be open but they are suffering from chronic venous insufficiency, we have a very robust program here in superficial venous disease where we treat patients who have chronic venous stasis ulcers, and in these cases we are doing laser ablation of the saphenous veins, which is done in a lot of institutions and out in the community, but we treat a lot of patients who have much more complex presentations with venous stasis ulcers, and we work closely with podiatry and hematology for these patients.

Dr. Mennen:

Now, what should physicians, family practitioners, internists, general surgeons, etc., know about the management of venous disease and chronic DVT?

Dr. Sudheendra:

I think the main thing to keep in mind is that venous disease is a real entity that should not be ignored. I know when physicians are seeing patients in their office, there is a limited time to really evaluate or go over every problem that a patient may have, but one of the beauties of venous disease is that it can easily be seen. If a patient just lifts their dress or their pant leg, you can take one look at their legs, and if you see the changes of chronic venous disease, that patient can likely be treated. If that patient has a history of deep vein thrombosis and subsequently has developed postthrombotic syndrome, there are specialized centers like Penn and other institutions around the country where people can go and seek treatment for their postthrombotic syndrome. So, it's not something that the patients have to live with. These symptoms can really be significantly improved. And, in many cases, as I mentioned previously, their quality of life can improve significantly.

Dr. Mennen:

Deepak, thank you so much for being with us today and sharing these insights.

Dr. Sudheendra:

Thank you.

Dr. Mennen:

I am your host, Dr. Barry Mennen. Thank you all for listening.

Narrator:

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