Transcript

Melanie Cole, MS (Host): Welcome to the Podcast Series from the specialists at Penn Medicine.

I'm Melanie Cole, and joining me today is Dr. Dmitriy Petrov. He's an assistant professor of neurosurgery at Penn Medicine. He's here to tell us and highlight the modern care approach to spine surgery. Dr. Petrov, welcome back. We're so glad to have you join us again. Can you start with a little bit of information about the current state of back issues today and the impact that they are having on society?

Dmitriy Petrov, MD: Thank you for having me back. It's a pleasure to be with you again. Back pain is the most common reason for emergency department visits and for primary care visits for all adult age groups in America. It is an exceedingly common problem. And we face patients with back and neck issues every day. As it stands now, we know a lot more about back pain than we used to know. It used to be that there were only a few options available, whereas now we treat back pain in a more holistic matter. We have a lot of different specialists that treat back pain, and here at the Penn Spine Center, we all sort of put our heads together and figure out what is the best personalized approach for every single patient, whether that is conservative measures, whether that is pain management strategies, or whether it is surgery by somebody like myself or one of my distinguished colleagues.

(Host): Well, thank you for starting us off that way. So, Dr. Petrov, the field of neurosurgery specifically in spinal care has evolved dramatically in recent years. Tell us some of the latest technical advances in neurosurgery for spinal trauma and complex care at Penn Medicine, and really what distinguishes these technologies from the current standard of care in the region.

Dr. Petrov: The way that we approach spine surgery now is markedly different from the way that even I learned in training. The way that I do surgery now has evolved tremendously. And that is true for all of our surgeons here at University of Pennsylvania. We have a significant armamentarium of tools available to us. Different approaches, different instrumentation techniques, different surgical adjuncts that allow us to do a more targeted more fine, more minimally invasive, smarter surgery than we used to do in the past. We employ neuronavigation and we employ robotics. We employ intraoperative imaging. We employ complex preoperative planning.

And on the back end, after the surgery, we have strategies to minimize pain, to maximize patient comfort, and to allow our patients after surgery to recover and to rehabilitate as fast as possible and return to work, return to their families, return to their lives with less pain and more function.

(Host): Certainly an exciting time to be in your field with so many advances. Anyone who's had chronic back pain, Dr. Petrov, or been close to someone who has–I certainly have had it myself–knows that it often involves visits to several providers in a drawn-out process of diagnoses and treatment. How quickly do you see patients and what can you do to expedite diagnosis and care?

Dr. Petrov: I personally give my referring doctors my personal number, and I say, if you have somebody that you think needs a surgical evaluation, please call me. I have a very personal relationship with my doctors, and so, I enjoy this sort of communication, which is frequent and very common, but we do have the Penn Spine Center where we have very direct communication with our schedulers, who communicate with our nurse practitioners and physician assistants, who communicate with our doctors. And we are able to get patients in very quickly.

If one of my providers calls me or texts me and says, I have a patient that needs to be seen, I could see them this week. I could see them tomorrow. I could schedule a televisit, which is huge for our ability to provide service to our patient. Almost today, if it's truly an emergency. So we pride ourselves in getting patients in as soon as they need to be seen. And at that time, it doesn't always mean that we take them to surgery. Oftentimes that means referrals to our partners in pain management and physical medicine and rehabilitation in order to get them the conservative management they need prior to considerations of surgical intervention if that's the appropriate path for the patient.

(Host): Well, it really is a multidisciplinary approach to care. And one issue Dr. Petrov, for some patients involves the transient relief offered by spinal injections sometimes for years. Tell us a little bit about why this happens and how these patients might benefit from alternate forms of treatment?

Dr. Petrov: Spinal injections are a double-edged sword. There's a multitude of spinal injection options available, including epidural injections, including injections that block specific nerves, including injections that will ablate or deaden nerves that are going to joints that may be causing pain. There's multiple options out there and sometimes in the community pain docs will continue to give injections as you mentioned, with transient relief and then continue to do that for months, years, even.

A lot of those patients would probably benefit from an evaluation by a surgeon in order to determine whether more definitive therapy is available, that can be more durable and have a longer lasting effect. Just like surgeons should not operate in a vacuum without pain medicine docs, so should pain medicine docs not operate in a vacuum without surgeons. There needs to be a back and forth between professionals where we can together decide- well, maybe this patient is failing the conservative management with injections and would benefit from an operation, or maybe this other patient would benefit from injections prior to consideration of surgery.

This is why we focus on patients that need to be seen quickly, can be seen, in order for us to give appropriate advice. And that is why we also work so closely with our colleagues in pain management, in order to have this sort of communication and have a targeted individualized approach for every one of our patients.

Because let's face it. No two patients are the same. No two backs are the same, and everyone's life story is sort of written across their spine. What kind of work they do, what kind of genetics they have, and what kind of life they have lived.

And you can't have a cookie cutter, one size fits all approach. Every patient requires an individualized plan. And that is our focus. That is the benefit of the Penn Spine Center, of a

multidisciplinary team that is focused on getting you back to your life with less pain and more function.

(Host): What a great point you made. So let's switch our discussion a bit Dr. Petrov now, to surgery for more severe forms of back pain and spinal trauma. You're speaking to other providers. Why should someone have spinal surgery? And what are your goals for surgery once a patient becomes a surgical candidate?

Dr. Petrov: The way that I describe the indications for spinal surgery to my patients is twofold. In one camp, you have patients that have compression of neural elements, compression of their nerves, or compression of their spinal cord. And if we don't do anything, that patient will continue to have neurological deterioration and may lose the ability to move a muscle or move more than one muscle, or lose sensation. Or the ability to walk, or the ability to use their arms or hands. And so at that point, it becomes a surgery to not only alleviate, but also to return to function.

And in those instances, when we see compression, especially at the spinal cord and a deteriorating neurological exam, deteriorating function-that is a surgical indication, and there's very little conservative management that can be offered aside from decompressing the spinal cord. And oftentimes stabilizing the spine in order to prevent it from happening again.

In those instances, we focus on the principles of decompression–of making sure that the nerves and the spinal cord are decompressed and free. And we focus on reconstruction–making sure that the spine is in good alignment and that we don't have any further compression, if we can help it.

And in the other camp are patients who don't have neurological dysfunction, who don't have life and limb saving needs. Those patients have pain, and pain is awful. Pain is debilitating pain can prevent us from working, could prevent us from living a meaningful life with our families and doing the things that we love. Picking up our grandchildren, our children, and being able to enjoy life.

And in those instances, I tell our patients that the point of surgery is to improve your life. And if your life is at the point where you are considering surgical intervention in order to make it better, then we are here for you and we discuss options. And once again, oftentimes that involves decompressing nerves that could be causing you pain.

And oftentimes that also involves reconstruction, patients who do manual labor or carry a lot of weight or generally have a predisposition to arthritis will oftentimes have slipped vertebra, will have degenerative changes causing a scoliosis. Things of that nature that can cause significant amounts of pain and dysfunction. And in those cases we talk about reconstruction. We talk about how can we rebuild you with the least amount of surgery for the most amount of improvement. And once again, it's always a discussion it's never a cookie cutter clear cut case. It's always a discussion and a joint decision between the treatment team–in this case, myself and my colleagues–and the patient and their loved ones.

(Host): As we're discussing your approach to surgery, Dr. Petrov, for referring physicians that are explaining these things to their patients–let's talk about minimally invasive spine surgery and the benefits to the patient. And even the benefits to the surgeon when performing minimally invasive spine surgery.

Dr. Petrov: Minimally invasive surgery in general, sort of became a catchphrase a couple of decades ago when we figured out that if you can achieve the same goal using less surgery, then you're helping the patient and you're helping prevent complications and you're helping get patients out of the hospital more quickly. And overall as a net positive.

When we talk about minimally invasive it's the principle of, can we do more by doing less? Can we approach the spine in a way that allows us to minimize postoperative pain and minimize the morbidity of cutting somebody open and moving around muscles and bones and minimize all of that while at the same time achieving the same result.

And so to that end, we employ a lot of really neat surgical adjuncts to allow us to perform minimally invasive surgery.

So, I'll give you perfect example, in years past, in order for us to place a screw into somebody's spine, we had to open up their skin, move their muscles aside and using anatomic landmarks and inoperative imaging, we would guide–under direct visualization while looking at the person's spine–we would guide the screw into their bone. What we can do now is using essentially a GPS for the spine, we can place the same kind of screw through a one and a half centimeter incision with incredible precision, exactly where we want it to go.

And so that allows us to do hybrid approaches where we may put in one type of instrumentation, like a cage from one angle, and then we could turn the patient and put in screws from another angle. And we can accomplish all of this while doing much less surgery than we used to have to back in the day, prior to the advent of navigation. And it's revolutionized the way that we do surgery to such an extent that it's becoming the standard of care. And if you talk to a lot of experts that would say it is a standard of care for doing spine surgery.

And it, once again, it allows us to do surgery with less incisions, fewer incisions, with shorter operative time, with less damage to the patient's tissues on the way in and on the way out. And allows us to get patients up and moving almost immediately after surgery and get them out to the hospital much more quickly. Which is at the end of the day the goal, to get you your life back as quickly as possible.

(Host): Certainly a big benefit. And spine surgery is typically considered an elective approach to enhance function, resolve pain, as you've discussed here today. Can you clarify just a bit what elective means in the context of surgery for severe pain and spinal trauma?

Dr. Petrov: Right. Well, so as I mentioned previously, if a patient has loss of function due to compression of the spinal cord or compression of nerves, that's resulting in inability to move a muscle, move a limb, things of that nature, then that is a surgical indication and a relative urgent/emergent need for surgery, especially in trauma. If you have loss of function due to trauma, that is an emergency and we will operate on those patients to get them

decompressed and stabilized as fast as possible. Oftentimes, within an hour or two of getting to the hospital in the middle of the night, whenever we have to.

On the other hand, if you have somebody with severe pain, in that instance, it becomes really a discussion with the patient because pain is so subjective. Everybody experiences pain differently, and everybody comes to the doctor's office with a different lived experience and different considerations and different values. And the conversation usually goes, "Well, how much pain are you in? And how much does this limit your life on a day to day basis? And at the end of the day, is this pain so severe that you would consider going through surgery, which is a big ordeal. in order to make it better?"

And you'd be surprised. Oftentimes patients say, yes, this is debilitating. I want to get better.

But sometimes patients will say I have pain-but you know what, at this point I'm not ready. And as long as they're not in danger of losing function, they're not in danger of losing the ability to walk, for example, then there's really no urgent need.

And I'll say, let's meet again and talk about it again and maybe those things will change. And in the meantime, let's try some more conservative things. Signing somebody up for spine surgery should never be the first time we meet, it should be a serious consideration. It's a discussion between the physician and the physician team and the patient and their loved ones.

And at the end of the day, the goal of all of this is to get patients more function, less pain, and more ability to live their lives as normally as possible.

(Host): This is such an interesting field that you're in, so many advancements. Dr. Petrov, as we wrap up, what would you like to tell referring physicians about the Penn Spine Center when their patients need an evaluation? And how will they do that?

Dr. Petrov: The Penn Spine Center is here to help you. I think that's the overall message, as you mentioned, the field of neurosurgery and spine surgery has advanced so much that oftentimes physicians don't know exactly what's available. What are the most cutting edge techniques? What are the ways that we can help their patients? And that's what we're here for. It's a one stop shop. Once you refer a patient into the Spine Center, we're able to triage them appropriately. We're able to get them the kind of care that they need in the appropriate fashion, where we get them exactly what we need and not anymore, not any less. And we're able to take care of them at the highest standard of medical care.

(Host): Thank you Dr. Petrov, so much for sharing your expertise with us today.

To refer your patient to Dr. Petrov at the Penn Spine Center at Penn Medicine, please call our 24/7 provider only line at 877-937-PENN. Or you can submit your referral via our secure online referral form by visiting our website@pennmedicine.org/referyourpatient. That concludes this episode from the Specialists at Penn Medicine. I'm Melanie Cole.