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Neck and Back Pain: When Should You Refer Your Patients to a Neurosurgeon?

Narrator:
You're listening to Medical Breakthroughs from Penn Medicine, advancing medicine through precision diagnostics and novel therapies. The following program was recorded at Penn Medicine's live event, Hot Topics for the Primary Care Provider. Your host is Dr. Matt Birnholz. Dr. Birnholz welcomes Dr. Patrick Connolly, neurosurgeon at Penn Medicine, whose practice specializes in a wide range of neurosurgical conditions where they focus on intracranial and spine disorders. As a member of Penn Neurosurgery, Dr. Connolly provides neurosurgical options and access to other Penn specialists, connecting patients to the most innovative surgical and nonsurgical treatments for aneurysms, brain tumors, and other brain and spine conditions, and now here's your host, Dr. Matt Birnholz.

Dr. Birnholz:
Our topic today, as a neurosurgeon, we're going to be focusing on spine health. We're going talk about back and neck pain. As everyone here knows intimately, back and neck pain are a staple of the primary care visit, but one question that often comes up is, "At what point should you be referred – should you be called for consultation?" when it comes to the patient with back and neck pain.

Dr. Connolly:
As most everyone in this room knows, 80-90% of people have an episode of back or neck pain in their life at some point, so it's extremely common, and 90% of those patients will resolve their symptoms within a period of about six weeks or maybe even a bit less. If a patient goes beyond that six-week period and their symptoms have not resolved, then that's somebody that you might think a little bit further about sending for another opinion. Other things that you would think about are – even if somebody has leg pain or classical radicular pain – that will also get better in time. The kind of person that you're going to worry about is if they have profound weakness or weakness that comes on very quickly, if there are other associated things like urinary incontinence or bowel incontinence – these are pretty rare in the scheme of things really. One to two percent of patients with even lumbar disc disease will end up having that kind of clinical picture. There are other things too like if somebody has a history of cancer and develops back pain, if they have a history of osteoporosis, then things like that are sorts of patients where you'd want to sort of escalate inquiring with a neurosurgeon.

Dr. Birnholz:
Eight to nine weeks is especially pertinent in my own personal case. Sitting in this chair for a long enough time with extraordinary back pain, radiating upward to my shoulders; I'm assuming although these primary care physicians might be seeing me tomorrow, I might not be consulting with you immediately on that.

Dr. Connolly:
Uh, typically not immediately; I mean, it really depends on the severity of the presentation, so if someone presents with severe symptoms and they are extremely debilitated and their function is impaired, then that's somebody that you might want to have seen a little bit sooner than somebody with less severe symptoms and it's clearly radicular pain and there's certainly a course of conservative treatment that you can try first. I can tell a story. When I was 23, I had a herniated lumbar disc and it was pretty miserable, right, for about a month, but then it did actually start to get better on its own with a combination non-steroidal anti-inflammatory medication, a little Tylenol 3, and things got better. That's usually the story of how things go.

Dr. Birnholz:
I want to go to the other story, the surgical side – the surgical solutions that you offer or that patients are presented with – what are the different types of surgical options out there for patients that are coming in with neck and back pain that require your consultation?

Dr. Connolly:

There is really a number of different categories, and a lot of times it varies with age, so for younger patients between 20 and 60 the most common thing you're going to look at is somebody with a herniated disc that's causing compression of a nerve and causing radicular symptoms plus or minus back pain, and that's something that does tend to get better in time. For the older patients 60 and above – 60s, 70s, 80s, and sometimes even into their 90s – the lumbar spondylosis tends to be a lot more common, which is basically arthritis of the lumbar spine, and we get it, unfortunately, just as a consequence of walking on two legs. Everybody gets some degree of it, and most of the time we can manage that with conservative treatment, but a lot of times people want to know – patients and physicians will want to know from a surgeon – well, "Is my patient going to end up in a wheelchair? What's my outlook?" and a surgeon can be helpful with that too.

Dr. Birnholz:
If we consider some of these different options that you have at your disposal, what are some of the immediate, highlight benefits and risks that come to mind for you, such as some of the problems that you discussed and some of the surgical solutions that are there, are there any key factors that make you say, "The risk would be too high," or "The benefit would certainly outweigh the risk here?"

Dr. Connolly:
The main thing, in terms of offering a benefit to a patient, a good course of conservative treatment is really important, again symptoms permitting. Once you have a patient go through six or eight weeks of conservative treatment, which may be physical therapy, non-steroidal anti-inflammatories, even p.o. steroids, or epidural steroid injections, just a range of different possibilities, and the patient is still having a lot of symptoms, then you get a lot more comfortable about offering surgery. The other thing that's really important is to make sure that the anatomical picture on the scan matches up with what you're seeing when you examine the patient, so if you have a patient that has a large herniated disc for instance but they don't really have that much leg pain, well that doesn't always necessarily fit or if you have somebody who has a mismatch. So, let's say they have a herniated disc on the right side but most of their pain is on the left, well then that's something that gives you a little bit of pause too, and it's not that you wouldn't consider doing surgery for that, but that's something that you definitely need to talk to your patient about – "Hey, there's a mismatch here. Your symptom picture and your physical findings are not perfect." Those are things that can decrease the chance of you having a good outcome. In term of risks, there are patients that you wouldn't want to operate on. I would say that the patients that we worry about are patients, again, that have a mismatch of symptoms; they have pure back pain; they have other psychological findings, so the surgery that we do is, of course, we like anatomical – when everything fits anatomically, it's great, but that always occurs within the milieu of overall biosocial picture, so you want to make sure that you're going to be able to help your patient.

Dr. Birnholz:
That sort of ties in to my other question. I want to flip it a little bit and ask you about the ideal patient. I'm sure a number of our audience from a primary care perspective, they really hone the idea of this needs to get some surgical consultation. They get very quick at being able to get a sense of that, but the question of who the ideal candidate for surgery often persists. What are your thoughts on that?

Dr. Connolly:
Well, there are a couple of ideal candidates you can think of. So, one ideal candidate is somebody, let's say they're 32, they've had two months of symptoms where it's radicular pain, they have a weakness in their gastrocnemius and lateral numbness and they have a decreased reflex at the ankle and they have a herniated L5-S1 disc on the left side that's pretty big. I mean, that's pretty easy. That's pretty ideal for a neurosurgeon. I think that we can make a pretty good – I can't guarantee it – but I think that when you talk to your patient, you can definitely say, "Look, it all fits. You're young. You're healthy. You're going to get better from this. You haven't gotten better with conservative treatment, and you're somebody that – if there's anybody I can help, it's probably going to be you." The other kind of patient where you would think about is the older folks. You think people in their 70s and 80s, "Oh, you know, they're too fragile," these patients do fantastic if they have the right anatomical findings and they have the right picture and they present a lot differently. They present with what's called neurogenic claudication, which again, most people in this room know what that's all about. They can walk a certain distance. They tend to be flexed forward a little bit, and they have to sit down to relieve their symptoms. When you look at an MRI scan, you can see that there's a lot of overgrown bone that's compressing the nerves in the lumbar spine. It's typically at L4-5 and at L3-4, but it can be at other levels too, and those patients too, again after a good trial of conservative treatment, physical therapy, and sometimes epidural steroid injections, oral steroid or perhaps a mix – it doesn't have to be in any particular sequence; it doesn't even have to be all of them. We can talk to our patient about what the different options are, but once those patients have a trial, and they have again good anatomical findings on a MRI scan, those patients do really well with surgery. That's really the case for most patients. You've seen it in the common literature, the newspaper, the mainstream media, and in the medical literature. There are a lot of lumbar fusions and a lot of people putting a lot of instrumentation into patients. Most of those patients in my practice and my partner's, Steve Dante, practice, too, most of those patient do pretty well with decompression without necessarily requiring any kind of

fusion or any kind of big instrumentation.

Dr. Birnholz:
So, a conservative approach can often yield the best results.

Dr. Connolly:
I think so, but when it's time for surgery, then, yeah, the surgery works very well too.

Dr. Birnholz:
I want to turn to another subject that you're very closely involved in that has to do with activities that you are part of beyond just seeing patients at Cherry Hill, because I understand you also see patients at the Virtua campus as part of this Penn Virtua of Neuroscience Partnership. I don't know a lot about this particular neuroscience partnership, but maybe you can talk about it a little bit. I confess I did a little background digging on you, and I saw that you've had a big part in building that relationship from scratch in a way as part of the team that helped build this relationship from the neuroscience side. What was that about?

Dr. Connolly:
Well, I think there are really a lot of people in both Virtua and Penn who have really put their heads together to try to bring the Penn and Virtua alliance to life, but I think the idea was that there hadn't been cranial neurosurgery at Virtua for a really long period of time – for 10 to 12 years. That's something that they really wanted. I mean, there're a lot of people doing spine surgery in suburban New Jersey, but for cranial neurosurgery, in suburban New Jersey, it's a bit of a desert, if you will. They, of course, do cranial neurosurgery at Cooper and across the river and at the shore, but if you look at where there's a lot of people – there are several million people that live here, that live right around us, so we wanted to be able to provide that service. Virtua needed some help in bringing that to life, and Penn, of course, you know, there has been Penn Neurosurgery for over 100 years, so it's something that we were able to do very well. I think that also from a business model perspective, pretty innovative too, because Penn is a vertically integrated health system. They own hospitals; they own physicians, so working with an outside health system like Virtua or another health system is pretty innovative as well. So, there are all kinds of people, physicians, advance practice providers, and all kinds of administrators horizontally working with each other between Penn and Virtua to bring this to life. The patients always ask, "Well, what does this mean for me?" and basically all it means is, "Look, we have Penn neurosurgeons seeing you here in New Jersey and we're doing your surgery at Virtua in another health system," and that's it. You're getting the same grade Penn neurosurgery; you're getting great care at Virtua, and it's a model that's working really well." We are really excited to be able to deliver neurosurgery into suburban New Jersey in a way like this that nobody else has ever tried.

Dr. Birnholz:
I assume this wasn't a development that occurred overnight with, "Hey, wouldn't neuroscience over here would be great and let's just take care of it."

(laughter)

Dr. Connolly:
It happened surprisingly quickly for two large health systems, so I think that the people at Penn and Virtua first had an idea about this in April of 2015. That's the first time I heard about it, but then by the end of October, they had a transfer agreement together and by January – just in the last year – we started seeing patients there and started operating on them there, so I would say that as big health systems go or any corporate project, if you will, this came together really quickly.

Dr. Birnholz:
I would tend to agree. I mean, most of my experience seeing partnerships develop, it's usually – I guess the key word there is glacial, and this actually really went very, very fast.

(laughing)

Dr. Connolly:
It happened really quickly.

Dr. Birnholz:
Anything I didn't ask you that you want to reiterate for our primary care audience and this subject of neurosurgery, back and spine, spinal and neck pain issues, and of course, the partnership?

Dr. Connolly:
I think a light touch in terms of intervention is always a good place to start and, like you said, most primary care physicians have a sense of what's going to need further attention and we're here to help. We also have a cranial neurosurgery service at Virtua, but obviously,

most primary care physicians' needs are going to be with the spine, but we have that too.

Dr. Birnholz:
Light touch theme from a neurosurgeon brings tears to my eyes. It's fantastic! I want to thank Dr. Connolly so much for joining. Dr. Connolly, great to have you.

(laughter)

Dr. Connolly:
Thanks very much, Matt. I appreciate it.

(clapping)

Narrator:
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