SPEAKER 1: If you have a comment or a question as it relates to these case presentations, please feel free to chime in. So this is a pretty standard case, and I would venture to say that all of us have seen this patient or all of us are this patient. And this is a 32-year-old, i see this commonly in my office, she's got her hands full working with three young children. And she has this typical history of episodic low back pain. When it occurs it's severe and immobilizing. It shut her down for a couple of days.

Generally, it's spontaneous and onset. Generally, it gets better within a week or 10 days, but that week or 10 days is miserable. She has occasional pain to the buttock, it's not the true radicular pain that we heard about. But that Zach described, mechanical back pain being in the back and occasionally in the buttock. She gives a history of having gained some weight during her pregnancies and become a bit deconditioned. And when you look at her on exam, she's very limited in range of motion. She's in the throes of this very acute pain, she's having difficulty bending.

But she has a non-focal, neurologic exam. Negative straight leg raise and her strength is intact. You got a plain film there, and I think we'd all agree, that's a pretty healthy lumbar spine. I hope mine looks that good. So what about this patient? Christina, you see this patient probably fairly frequently, what's your sense of urgency? What are you going to tell her about what the immediate steps are? What about x-rays? Does she need an x-ray? Or has she already had one? And what medications are you going to-- we heard from Melinda about steroids maybe not being as beneficial as we thought, maybe we're treating herself. What about this young woman?

CHRISTINA CHENG: I think in terms a sense of urgency, in surgical point, I think she's in any urgency for any surgeries. I think this seems to be like an acute on chronic issue. She has no neurodeficits that we need to address. And I think that since she hasn't tried any non-operative management, I think that's something that would be worth trying.

In terms, of further imaging, I don't think I would get any further imaging at this point. I think that I would probably recommend anti-inflammatories for now, in terms of her pain control. And refer her for physical therapy for conditioning, especially since she's been deconditioned and she's had multiple pregnancies. So her core may not be as strong and I think those are things that will help with her pain.

SPEAKER 1: Great. Melinda, you mentioned the use of steroids, which I would say I use a lot in my practice for both radicular symptoms and occasionally for axial back pain. Is there a role here? Should we stick with non-steroids? Can we use short-term muscle relaxants and how do they work and are they a benefit?

MELINDA LAWRENCE: Yeah, so I think everything, obviously, that she said was totally reasonable and I agree with all of those things. I think the hard part is that this is, obviously, an acute on chronic thing, it keeps coming back. And having three kids, doing all these things, so I think, really, it's going to be a lot of physical therapy. And really for probably disk eugenic type back pain is going to be the number one thing to do to keep her out of our offices, and things like this.

But medications, we know that it's not that effective. However, you know placebo, maybe one in three patients are going to have a response, could that be reasonable in low-risk? Sure. I think it's not unreasonable, she's probably otherwise healthy, young person. But muscle relaxants we do know less than a week or in the first week or two do you have moderate benefits. So I think that could also be a short-term prescription that would also be reasonable. I typically don't give more than two weeks when I write them.

SPEAKER 1: Are muscle relaxants better than short-term opiates in this situation, is one question, and then secondly, invasively, is there any role for a facet block in this woman when she points to ipsilateral pain in her low back?

MELINDA LAWRENCE: I mean, I'd have to talk to her a little bit more. In this patient I'd probably be more suspicious for it coming from her disk is typically in this age group, even if it's just ipsilateral. So maybe disk irritation or something like this. But I would say probably that would be more likely than facet mediated pain, typically.

SPEAKER 1: Excellent. And then Ben, obviously, you're going to be the cornerstone of treatment to help this woman acutely and long-term. When therapy? Should we give this a chance to cool off for a week or two? Is she going to be better off once she's had some time to chill out? And then once she does reach you, what are you going to do for her? What's your role, acutely, with a therapy regimen?

BEN: So if it's really, really hot and bothered acutely, we might do very light repeated motion type of programming just to, kind of, get it calm down. But this is a recurrent thing. So as soon as she can tolerate it, we're going to start to work on why this is happening. So postpartum, it may be core stabilization issue, there might be pelvic floor dysfunction. This is a young gal that has three children, I'm assuming that she's very busy. So we don't need to give her an extensive home program, she's probably fairly healthy anyway. We need to give her a specific and direct and appropriate couple of things to do at home to, hopefully, prevent the next time this happens.

SPEAKER 1: Excellent. Any questions, concerns? Sir, far in the back.

SPEAKER 2: Here you go.

AUDIENCE: I've had increasing problems maintaining physical therapy because paying a copay for the patient every time they show up and that prevents them from going for the proper duration, depending on what problem they're treating. But is increasingly annoying on my end you hear about that, knowing that that's where they should be going and that's the best thing they can do. And even I'm telling them that, this is what's going to keep you from coming in with this problem anymore. You know, money trumps all.

SPEAKER 1: Yeah, I couldn't agree with you more. Ben, does that influence your education of patients and does it kind of change what you might teach them on doing? Are you going to tell them to go and see a yoga instructor after you've treated them acutely? Or they going to get them into water therapy or what are your strategies there on patients, who is almost everybody, has limited financial means for co-pays.

BEN: Yeah, it annoys me as much as it annoys anyone else in the equation. So our management while they're actively a patient needs to be, only as often as is required and only for as long as is required. So these are folks that I might see every two weeks, as opposed to three times a week, which was the old for-profit kind of model.

I give all my patients my email, I have been known to send them, OK, that's too easy. Now try to do this. And send them a YouTube link or something, for the right patient, of course. But then when it's time for discharge, a lot of times people get episodic recurrences of the same thing. So I encourage them to keep their home exercise stuff handy and if they had the same thing that happens again in a year, to kind of go back to the well and try the same sorts of thing.

Assuming they don't have new, scary symptoms. And then at that point if it's not helping, then to come back around. I'll be here. And then things like yoga, I'm the world's biggest proponent of SilverSneakers. You know, kickbacks from them, but I try to get folks into that programming. And they just need to do something. I don't even much care what, they just need to keep moving.

AUDIENCE: Just on a side note, my name is Lori, I'm a physical therapist-- Oh.

SPEAKER 2: Now use these, talk.

AUDIENCE: My name's Lori, I'm a physical therapist at Southern Hills and we do aquatic therapy, so forth, do spinal time. The people with the high co-pays, typically, if I can demonstrate to them why I am valuable on the evaluation day, which typically we can. And why we provide a service that-- when these patients are going home you're going to be surprised what they're doing at home that is perpetuating their pain cycle.

It's amazing some of the things I've seen. And those key things are what we focus on. So once I'm done with the evaluation, determined the abnormal forces that are occurring through spine, I will go through their data will spend that time trying to decipher what things they're doing in their day that is perpetuating that pain cycle. And then I teach them how to cook, how to clean, how to get out of a chair. The positions you need to be in when you are taking care of your children. We'll do all that. And once we start talking about that all, of a sudden the money is a little bit less valuable to them, as the information that we're giving them.

So then they'll stick around a little bit more. But yes, like Benjamin said, typically those cases I only have to see them one time a week. But their compliance is an exceptional part of that puzzle. I've had plenty of patients come to us and say, doctor said this is not going to work, but I have to do this because I need my injections. Right from there, our hands are tied. They won't do their home exercises, they won't follow our pastoral and our body mechanics instructions, which are going to improve their symptoms, even in the worst chronic pain patients.

People have been 10 out of 10 every day of the life, if they can get it to an 8 out of 10 by the end of the day, they see the value in what we're doing. And typically, what we're doing is not a lot of exercise. I spend my whole time teaching them how to live and how to function, how to work, how to do things at home. So that the pain is not bad at the end of the day, and then they see how valuable that that information is. So we ask that you don't tie our hands and make them non-compliant right off the bat.

Their compliance, even if we're going to see them once every two weeks, is very important. And so if you say, hey, this is not going to help, but sending you anyways, they're not going to listen. So we're going to ask that, like Benjamin said, just help us along in this puzzle. Because we can educate the patient and we can help them in their daily tasks, which is where the bread and butter is here, help them in their biomechanics.

SPEAKER 1: Thank you for those remarks. I think you can underestimate the therapeutic benefit of getting patients engaged in their own care in settings like this. Excellent.

AUDIENCE: [INAUDIBLE] a 32-year-old lady, with history of pregnancy and a mechanical non-rotational pain. So first, what is our diagnosis here? So we're looking at either [INAUDIBLE] mechanical back pain. So before we can say, let's go ahead and do injections, I think you have to [INAUDIBLE]. So if you sent then to physical therapy and some medication regimen, and potentially with the help prevent being like [INAUDIBLE]. For a 32-year-old-- there's a [INAUDIBLE] article that came out a couple of years ago. Sacroiliac joint pain is more common honestly in this age group rather than [INAUDIBLE] pain. So just a thought.

SPEAKER 1: Excellent. Well--

SPEAKER 2: She has one question.

SPEAKER 1: Sure.

AUDIENCE: Hi. I just wanted to know what the role of a TENS unit would be in this patient? How would we order a TENS unit? Who would qualify for that? Do we have to send them to physical therapy to be evaluated for insurance coverage?

SPEAKER 1: You want to weigh in on that, Ben?

BEN: Send them to Amazon.

[LAUGHTER]

MP used to be the big carrier of TENS and other types of devices, and they went under and took the whole enterprise with them. So it is possible for some payers to get a TENS unit covered, but it's so laborious and it takes such a long time that most of the time somebody is not having pain anymore by the time it arrives. So I say, just keep it handy for next time.

And I think there's increased quality of some of the consumer stuff that's available. All that stuff that Shaq is selling is now fairly similar mechanistic way to what used to be on a big cart in the PT gym. And we could talk about the role of who would benefit from that and where I'd go that route as opposed to something more active, but you can get a good one for $20. And that's usually the way to go for a multitude of reasons.

SPEAKER 1: Great. I think we'll pass the microphone down to the table and have them weigh in on this case. So a little different setting here, still a young person, mid-30s corporate attorney. And he has six weeks of rather severe left sciatica. Spontaneous and onset, as generally it is, he can't pinpoint one specific activity. He has a lot of numbness in his leg and we'll ask our panel about the significance of numbness. I'll say that it's amongst the most disconcerting symptoms for many patients.

They can have the world's worst pain and it's the numbness that bothers them the most, because it evokes thoughts of nerve damage. Like a lot of patients with acute sciatica, he has minimal axial back pain. And like a lot of the mid-30s, AAA-type personalities, he wants it fixed immediately. For the sake of time, we'll say that he's had some initial management with medications and activity modification. So what about this patient, Zack? Do you see this patient frequently? And he has six weeks of rather severe sciatica.

ZACH GORDON: Yeah, this is a fairly typical patient that we'll see in the office. You know, by the time they get to us, six weeks of symptoms is pretty much what they've had. And most of the time they've had at least some activity modification and medication. Whether or not they have an MRI-- I view MRI of the lumbar spine, kind of, different from MRI of any other part of the spine. It's only used in my hands to plan an operation or to rule out anything dangerous.

So if we have concerns of cancer, infection, things that are going to permanently maim, paralyze, disable a patient, kill a patient potentially, they need an imaging study. Someone who has a leg pain, no neurologic deficit-- or even leg pain with a few weeks of a foot drop. I know some people really lose their mind when somebody has a foot drop in the office. But most of those foot drops are due to inflammatory response of the nerve. As you treat the inflammation with time, rest, anti-inflammatories, those can get better, too. But if this person is dead set on getting it fixed and they haven't had any other treatment at all. I'd be very reluctant, especially with an attorney sitting in front of me, to jump right to an operation.

Just because some people don't get better or there are complications. And it's much easier to deal with that if you've at least tried something else first. But if he's tried some other things and doesn't have an MRI, I think you need get an at this point to see what's going on, with the intention of planning an operation. But the conversation, at least in my clinic goes, why do we get an MRI unless we're going to act on it, right? We know what the problem is with a very high level of certainty based on your exam. So if you get an MRI, we ought to be prepared to act on it. Otherwise, you can live with this as long as you can put up with the pain.

SPEAKER 1: OK, excellent. So we did obtain the MRI and he has a left sided L4, 5 disc herniation, not a huge one necessarily, but it does seem to correlate with his pain. That's very important. Gabe, what are you going to do for this man? I would render to say you have patients and probably friends like this too, if you have some attorney friends. What are you going to tell him at age 35?

GABRIEL SMITH: Could be my MRI too.

SPEAKER 1: And maybe comment on your discussion of the natural history of disc herniations.

GABRIEL SMITH: Yeah, and I think as Zach kind of alluded to as well, he's really in the fresh period of dealing with this, quite frankly. He's on been dealing with it for about six weeks. Sounds like he's tried some medications, plus or minus some conservative therapies. But at this point, I would advise him that he does have a disc herniation. He has some lateral recess stenosis. Certainly could explain structurally what's going on, could explain his symptoms.

I would also advise him that at this point, he's still is in that acute period of radiculopathy. And at this point, he hasn't done enough necessarily to, in my opinion, warrant jumping straight to a decompressive-type surgery. I would advise him, at this point, to one, I would evaluate for what medications he's taking, look at his regiment. Two, I would advise him that, at this point, it might be worthwhile to consider both therapeutic as well as a diagnostic block with an injection.

It's usually traversing nerve root here, L5. So we would do it a left sided transforaminal epidural steroid injection, that would be my thought moving forward with an injection. I'd also make sure he's getting to physical therapy. I think he's still within that acute period. So I would want to see him back in about six weeks. And if his pain persisted at that point, and he's exhausted physician-directed physical therapy and he's not getting any better, at that point, then I think you have a more thorough discussion about surgical options.

But as Nick Ahn said in his talk, I thought that was a very good point. You know, people can have radicular symptoms up to two years before we see the decline in their neurologic recovery. I think I would encourage him to stay active. And the only other thing I would say is, at this point, because I get this a lot, is they always ask, can it come back? And I would say, yes, it can. And that's something that oftentimes I will reiterate, that you can always repeat the therapy and repeat the injections and try to stay the heck away from surgery.

Because surgery really should be the last resort. The only other thing I would say is, we have to be careful as well about opiates. I think Melinda talked about this, too. We don't want to create chronic pain patients. So I always advise them to stay the heck away from opiates, for medication perspective. Because we know that patients who start taking those have worse outcomes. I also advise them to stay active, go to work, do not file for disability. Because as soon as you get on short-term or long-term disability we know that patients do worse no matter what they do as well. So I would encourage that as well.

SPEAKER 1: Does the nature of his radicular symptoms, specifically numbness, does that change your approach or does it just mean it's going to be a longer discussion in the office? Because patients are concerned about numbness. Their pain may have gone away, still numb. Does that change things?

GABRIEL SMITH: From my perspective, numbness certainly is something that we see often. And it can be a very nuisance to patients. I do try Lyrica or Gabapentin to see if it can help. I think there's medications that we can try. I would advise him to see how he feels after he got an injection to see if that numbness did improve.

That's another thing that I would reinforce to him. And then, typically, I tell folks, again, once they get to that three month mark, if the numbness is persistent, if it's really starting to affect their quality of life, I think at that point, you do have to have that frank discussion of surgical decompression, something minimally invasive, as Manish talked about in his talk, is something worth considering.

SPEAKER 1: Great. And, Keith, patient like this, is there a time you want to see this patient? Is two weeks too early for his radicular symptoms? Is eight or ten weeks too long? Is there an ideal time you want this patient referred to you? And is your algorithm always the same? Is it injections first, with or without medications? And maybe what medications are going to help with his radicular symptoms?

SPEAKER 3: OK, yeah, so common scenario. It does vary. Typically, we would like to jump in injections as well based on the intensity of the symptoms. And if numbness is the main issue and he is not really, very symptomatic with severe pain, then medications and physical therapy and mobilization would be all that's needed. And I would also do the same thing, is to follow up with the patient. If he continues to have significant discomfort in four to six weeks time, follow up to consider injections.

Having said that, if the pain is severe, instead of a oral steroid dose pack, which has poor evidence, or anti-inflammatories or opioids, I consider an injection as a good tool to help facilitate physical therapy and rehabilitation efforts. It may, sometimes, get denied by insurance. But if it is properly put and as we're using this as a tool to help and the patient's in severe pain, it's usually possible. So depending on the intensity of symptoms, it can be utilized early, and injection.

But typically, we'd want to do medication and therapy. Medication, gabapentininoids are the commonest one that we'd use as a first line for neuropathic symptoms. So titration of Gabapentin, like Doc Lawrence described using a 300 mg capsule for a younger patient, and titrate to effect or tricyclic antidepressant-type medication at bedtime, along with an anti-inflammatory. Just a non-steroidal inflammatory.

SPEAKER 1: Ben, what's your approach to the young, healthy, previously fit, active , young adult with sciatica like this. What's your specific approach and is your approach benefited by somebody that has a nerve block or medications that cool the acute symptoms off?

BEN: I don't know where our microphone went so I'm just gonna-- I did hand it to you. So in someone like this, first of all, I'm going to tell them to just cool their jets a bit. Because no matter how much you want your situation to improve immediately, your body is going to heal when your body's going to heal. So the type A personality coming in like, i want it. You know, I want my money, and I want it now. And that's not how this works.

But I want to know how their symptoms behave. If it peripherals and centralize us over time with specific positions or movements. I want to know if that initial numbness can be brought to a point where it's more like a burning or tingling, because I'm a little bit more concerned about the absence of things than the presence of things that are uncomfortable. And then, again, I'm looking for why. Are your hips too tight? Do you lift poorly? Do you sit all day in horrible positions and that kind of thing.

I am absolutely in favor of any pain management or pharmacological assistance if it means that I can do more with a patient that's very, very, very painful. So if that helps jumpstart us or get us over a hump, if we've plateaued, then I couldn't support it more strongly.

SPEAKER 1: We've kind of heard, from a surgical standpoint, that maybe about three months is the benchmark one would start to consider surgery. Do you feel the same way in patients you've dealt with? Is it two to three months and you feel, I've not been able to make a dent in this patient?

BEN: I won't give it a time frame so much as a behavior. If we can do certain things and their symptoms centralize and stay that way, by in large, then I'm much more encouraged by what we're finding. If we work on certain repeated extensions over and over, or whatever the case may be, and they centralize and they stand up and it goes, whoop, right back down their leg over and over again. Then I'm pushing other buttons more quickly than that.

SPEAKER 1: Sure. You know, the sport study was cited in one of the talks, I think Manish cited the sport study as it pertains to spinal stenosis. Sport has nothing to do with sports medicine, it's the spine patient outcomes research trial that was done over a decade ago, a prospective randomized study assessing outcomes of both, spinal stenosis and disc herniations. Extremely well done, NIH funded study, that case was one of the participants in.

And you probably saw the results in this study five or six years ago, they made the national news. And a bit shocking was the natural history of lumbar disc herniations, generally while it favored surgery early, as patients got several years out the results of treatment, non-surgical versus surgical, were quite similar. So that the knee jerk reaction from media was that, while too much surgery is being done for disc herniations. Sure.

ZACH GORDON: Grab that microphone so-- You know, for non-surgical specialties, that sport trial was published in Jama initially, it was a medical journal, and I was leery of any surgical studies published in a medical journal because it usually means one of two things. It's either, a we're out to get you kind of thing, you guys are doing too much. Or it's something of a population health concern. And I think in this case, it was a little bit of both. But the problem with the sport trials is there were two wings.

There was the as the randomized wing, which was 1,000 patients or so, but they were analyzed on an intention-to-treat basis. So there was about 50% crossover in each group. And whenever you have high rates of crossover, the treatment effect is always minimized. And Jama would not allow the group, University Hospitals was included in that study group, we submitted a lot of patients, they would not allow the as-treated analysis to be published. And they would not allow the observational cohort to be published, as well, until later episodes and the media attention and died down. And when you look at the as-treated analysis, it very closely mirrors the observational cohort and there are significant improvements with surgery that are maintained out to four years.

And just recently, the eight year data came out on these patients . And by eight years the gap has really narrowed, but in the first four years, the leg pain scores and the general functioning are significantly better in people who underwent surgery. And for lumbar disc herniations like this, the treatment threshold was actually six weeks of non-surgical treatment. And so, in this particular case, if this guy comes in with six weeks of symptoms and he's done some other stuff first, I'm offering him an operation right at this point.

To live with that kind of pain and numbness for six weeks is unbearable as it is. So three months, I think, we start to think about the more chronic conditions, claudication and general standing and walking difficulties with stenosis. But acute disc herniations, four to six weeks of something is really all you need to have an operation. And it is very effective. We have to be careful about where we get our information from.

SPEAKER 1: Yeah, your point about the crossover is really valid. For those of you who don't know it, crossover meant that a patient was randomized to the surgical arm of the study, and thought I'm not having surgery. Or the flip side was, somebody's symptoms were so severe they'd been randomized a non-surgical manage and they said, I'm not having anything doing with that, I want a micro discectomy. So while it was a very well done study, it was prone to those flawed outcomes.

EDWIN CAPULONG: [INAUDIBLE]. So in a clinical perspective, here. So you have a case where you have a lateral foraminal stenosis at L4 and then L5, and then you have a central disc herniation, kind of like hitting the L5 as well. As you know, if you look at the molecular pathology, even in a few hours of acute disc herniation, you get all those molecular as well as elecrophysiological changes. So it's hard to say for, numbness alone, I would probably not even consider injection.

But pain in numbness, yes. Now in this particular case, and I've seen out of these, a lot of lateral stenosis, man. I mean, if it doesn't work with conservative treatment, just send him to surgery. The reason being, is that it's the location itself of disc herniation so hard to treat medical and even physical therapy. And if you look at the biomechanics, what are you going to prescribe physical therapy? Is in Mackenzie? Is it Inflection base?

If you perform Mackenzie on a lateral foraminal stenosis they will be in pain. And so most of the time, if you perform some sort of a flexion base, you increase the disc herniation. So these are just some of those things that we, kind of, used and abused, in terms of our treatment. But lateral foraminal stenosis, if it's really that bad, I think that's more surgical than the non-surgical.

SPEAKER 1: Questions from the audience? So, why don't we-- we'll skip this case and go on to finish up with this case. This was a very, very typical of what I see in the office, and this was brought up by several of the speakers, this type of patient. And I brought it up because I think it really represents a microcosm of what we see in spine surgery. Number one, it's an older patient, patient in their 80's. I think when I started practice, over 15 years ago, I could count on one hand the number of octogenarians I operated on in a year. And now we almost do it routinely because of that aging nature of our population.

And the fact that, they're aging more healthily, but still have these musculoskeletal concerns. So this is an 82-year-old retired woman and she has the textbook, very characteristic neurogenic claudication. Her ability to ambulate has becomes significantly compromised. Fortunately, and we like this insurgence, has really minimal axial back pain, as is often the case. She's generally quite healthy, although she's got the ubiquitous osteoporosis. She lives independently and she wants to continue to do so. She has that plain film, and we'll ask our surgeons to comment on the significance of that, that scoliosis.

And she has very severe multi-level spinal stenosis. So Manish, you told us a lot about spinal stenosis. What's your initial approach in dealing with an octogenarian who's relatively healthy and has significant neurogenic claudication? At this point, she's not had a lot of treatment. Are you going to talk surgical options with her right away, given her age? Or are you going to send her in some other directions?

MANISH KASLIWAL: No. So I think this is a very typical patient we all see, especially myself. With a fairly characteristic findings on the x-rays and MRI. And as you can see, on the x-rays in the lower, she gets referred a lot of time surgeons, mainly because of the presence of scoliosis, which is, again, kind of ubiquitous once people get older than like 65, 70, 80. I mean, I do see a lot of patients with scoliosis.

So if our symptoms are mainly neurogenic claudication and other than that, it's not any obvious deformity, where she is walking crooked, or like falling forward, we are going to treat as more like lumbar stenosis. And if she hasn't tried any treatment and if she has no objective weakness, which as I told in my talk it's very unusual. So I would not be surprised if she would be neurologically intact on objective exam, but may have some symptoms that would be more likely because of her stenosis. I think my initial choice would still be conservative treatment. I would not be surprised if she were frail. But I think it still makes sense to attempt because a number of patients would still do just fine.

So if I'm the first person who is seeing this patient, I would actually have her to do some therapy, maybe some medical management at least for at least six to eight weeks, maybe even 12 weeks, if the symptoms are not terribly bad. I mean, especially if she has not tried any injections because if she has leg pain i think, and studies have shown, that at least they do provide some duration of relief, may be permanent but at least can keep her going. And at that age, I don't think it's a big no for me for surgery, especially at the physiological age is not that bad. And the type of surgery which we can do is fairly doable, even in this age group.

So my first thing would be to send them for conservative treatment. And depending on how that goes, I do think there are good surgical options. And just for the sake of argument, if she goes for medical management, doesn't get better, she comes back to me, I will get some more x-rays to make sure she's not unstable, which she may not be because her spine seems to be already auto fused. So I think she would be an excellent candidate for a minimally invasive decompression. I would not even despite the fact that she does have some spinal allostasis. If she's not mobile, and our main problem his leg pain, and if the stenosis is mainly in the canal. I think we can easily perform an outpatient lumbar laminectomy And I do think that probably will help her symptoms, provided did she did fail conservative treatment.

SPEAKER 1: OK. Melinda, so I've sent a lot of patients just like this, maybe I've even sent this patient to you. Let's describe her stenosis. I didn't show any cross-sectional views, but we'll say that this is critically severe stenosis anatomically, no doubt about that. Are you going to be able to help her? And what's going to be your advice to her on the front end?

MELINDA LAWRENCE: So, you know, I think whenever I see patients I try to be optimistic. There's proven if you say, this is going to help, I think this is going to help you. Then they typically do better. I, just like my colleagues, don't want to have a setup where there's a negative connotation about the things that are going to happen. So I would recommend physical therapy. I would try medications. We could do an injection, however, especially when there's multi-level stenosis, it's much more difficult to see a positive response.

When just several levels in a row, typically if it's maybe one or two, we might see a better response. This is kind of what I was alluding to as far as opioids. You know I'm not an opiate prescriber, very small amount of my patients take any kind of opioid. But for a patient they'd be like this who may need-- whether it's minimally invasive or major back surgery to correct some of that curvature in the spine or decompression or something like this, might consider something like an opioid low dose or something like this here, there.

So they can function, do the things that they want to do. Although this patient may be pretty healthy, a lot of patients in this group may not be. And they may not be able to go for a surgery. Other things that could be considered, can't see as much from here, but if they had significant ligamentum flavum thickening. Other things that we could maybe consider would be something like a mild procedure where we can shave off some of their ligamentum flavum. if they had that at one or two levels or something like that. That could also be something considered, possibly.

SPEAKER 1: OK. Great. Ben, this patient is right now ambivalent about surgery, but she likes to exercise and she can't walk. She's tried to walk and she can't. What's your approach to the healthy, cognitively sound octogenarian that has a fairly disabling condition of nuerogenic claudication?

BEN: So early on I might choose something more in an aquatic setting or a recumbent cycling or something just to get us through that initial phase. But this person's imaging has looked like a horror show for far longer than today. So if this person's only had pain for x amount of time, this X-ray looks similar six months ago. So because of the osteoporosis you have to be pragmatic with flexion based exercise. Mean which position, what, amplitude how often, all those things.

Because I'm not just going to flex her 'till the cows come home because I might create a compression fracture in the process. But with some flexion based sorts of things and improving anterior hip mobility, so they're not stuck in this position and then having to crank up into that position to interact with the world. I don't need to make her spine normal, I need to make her hips move a little better and get her back to wherever she was before this became a thing.

So my outcome measure, if you will, with these people is how long can you walk before your pain starts to get worse? Which store can you go to without agony? Can you go to Walmart, which is my end point clinical goal for all my older folks. So it's dimmer switch, not off switch.

SPEAKER 1: OK, great. Ed, you mentioned the importance of trying some of the non-traditional things and we didn't mention too much about the Connor integrative Health Network, but it's a great resource for our practices and our patients, some of the less traditional things that might be of benefit. We'll talk a little bit more about surgery in a minute. But what's your thoughts, number one, on less traditional things? And then secondly, if it comes to surgery, which I think in my hands it would be an option for the osteoporosis is going to be a major factor for her, and I want that optimized.

EDWIN CAPULONG: Well, Ben and you just said it, I mean, osteoporosis adjacent compression fracture, I would send this patient, first and foremost, metabolic bone rheumatology endocrinology, get them treated. So in terms of the treatment for Integrative Medicine, you know, I think it's still a play. But with this kind of a situation where you had really a bad anatomical situation with severe stenosis and neurogenic claudication that limits function.

I mean, I don't know about manipulation, but I think acupuncture might help. Just because they do work on the opioid receptors. Maybe the serotonin/noradrenergic pathway as well. But, as you know, acupuncture, you have to do it quite often in order for you to get it. But overall. This is probably more of a surgical case. If the comorbidities are treated, that's specifically osteoporosis.

SPEAKER 1: Sure. Zack, I know you and I share similar approaches to this, we refer to this as an adult deformity. This is a scoliosis, that's not a scoliosis like a teenager and it won't progress over time. But it certainly has significance if we're going to address her spinal stenosis, which is her main pain generator. What's your approach to an octogenarian that may benefit from surgery but it's a big surgery?

ZACH GORDON: Yeah, I think, no one, getting the osteoporosis treated. Number two, why she can't walk has a little bit of a limited history for the purposes of this talk, but you look at her left hip, I mean, it's shot. She's got an arthritic left hip.

SPEAKER 1: Right.

ZACH GORDON: And if she says, I can't walk because my thigh starts hurting. I'm sending her for an intraarticular hip injection ans a hip replacement first. Much easier to recover from. But I have a little bit of a-- maybe it's a philosophical disagreement with Manish, and this is the beautiful thing about spine surgery. You can ask five of us our opinion and you'll get 12 different opinions depending on the day and time. But for these deformities, she has an unstable spine. She has lateral listhesis at L3, 4, at L4, 5.

I think doing laminectomies alone are going to be very unsatisfactory. She might get a little bit better for a short time. But you still subject that patient to the risk of anesthesia, the risk of surgery, and all other things that come along with being 82. But if she's physiologically up for it, these are people I'll try to send for some conservative treatment, briefly. If they're really not responding, my favorite approach for this is it is more of the lateral inner body fusion. I think you can address the deformity, you can address the stenosis without going into the spinal canal.

She's definitely not ankylosed based on that MRI, she's very degenerative. I think if you if you look at that from L2 to L5, she has spondylolisthesis at every level. And if it's a pincher-type effect with that buckled ligamentum flavum, sometimes they just need distraction. And if you put in lateral implants that are large in the anterior posterior plane, you don't really get that point loading and inplate fracture that you see with the posterior based t-lift or plinth base surgery. So you spread the force of the implant out over a wider area, you're less prone to getting inplate fractures. And I've done these osteoperodic patients.

I think they do very well, especially if their symptoms are positional. If they say, I can't stand. I can't walk. I'm miserable. As soon as I sit down, I'm fine. That's a very good indicator that they'll do well with an indirect decompression. And if you can stay out of the canal on these people, I think it's highly beneficial. A lot of times I'll stage them. I'll bring them in and do the anterior or the lateral fusion first, let them walk around for a few days and see if their legs feel better. If they feel better, we do something percutaneously just to lock everything in place and add additional stability.

But if they still have a lot of leg symptoms with ambulation you can do a formal laminectomy as well. so I think there are a number of good options here. There is certainly no right option, there's no wrong option. It's right for whatever you're most comfortable with and whatever the surgeon is most comfortable with, and the patient as well. But I think if you're going to do something to an 82-year-old, this is a one and done. I would not want to tinker around with, well we'll see if we can get away with this if the patient, take away the age, what would you do for that spine?

I think the age is a consideration, but shouldn't dictate the surgery that you do necessarily. Gabe, you're still early in your career and, fortunately, don't have the gray hair that some of us do. What's your what's your approach? You've been extremely well-trained over the last six, seven years.

GABRIEL SMITH: Right, well pressures on, tiebreaker. Well, no I think both Dr. Gordon and Dr. Kasliwal have both sound minds and good approaches to this patient. I think ultimately, from our limited scope of history, it seems like most of your symptoms are clarification based. And related to the stenosis, more so than necessarily axial back pain based upon the history so far. I agree with Dr. Gordon's philosophy, in that, certainly, she has some dynamic instability.

Even if it's just glacial instability, based upon the degeneration of the disc and the fact that gravity over time has made her spine subside. I think at the forefront, you have to have that discussion with the patient and look at the patient in general as somebody who has osteoporosis, that has a ton of medical comorbidities. Maybe they have diabetes, maybe they have rheumatoid arthritis. And you kind of have to make a decision about how healthy that patient is and if they could tolerate that larger operation.

I think that doing a focal decompression for somebody with a grade 1 spondylolisthesis that is not necessarily healthy is a very viable option. And I would think that if her symptoms were claudication that it's worth giving a shot, with the understanding and the expectation and the patient being told, that she could develop a back pain and need another surgery. I think it's all about expectations, making sure that you have that discussion beforehand. But it kind of depends on the patient I think, if they're healthy, they're extremely active, and back pain is a large part of their presentation as well, I think that may steer the ship in a different direction

SPEAKER 1: Excellent.

MANISH KASLIWAL: I have another point to make. So I think as Zach mentioned, there is definitely no right answer for this patient. But what is clearly important is to understand that this is somebody who would benefit from surgery. I think what surgery you do, I didn't use the dealer's choice after having discussion and whatnot. What is bad for this patient is that she is worried about spine surgery, oh, I heard bad things and I would never walk after surgery, that's not true.

And unfortunately, I do see patients in that age group who were previously functioning OK and there are horrible responses like that. They've been trying bunch of non-operative treatment for years and years and coming to see me in a wheelchair, which it is not really acceptable. I think some form of surgery, whether it could be decompression alone, fusion, collection of deformity, whatever, that could be safely done concerning her comorbidities. I think it's a reasonable option. Of course, if you do more, sometimes you can buy more complications.

But again, it doesn't mean that doing less is good always. So apart from what can go wrong with no matter what surgery you do, I do think that if she, otherwise, was doing OK, she should not be somebody who should be scared with surgery because of her age. I think she should have some procedure, because if done appropriately in good hands, I think that would restore our quality of life.

Again, as to what we do, there is no agreement on one procedure alone. And I think that's good or bad, or whatever way you can say, I think this is somebody who would benefit from surgery. So that is the important thing and I do see a lot of patient who say, oh, I think I cannot have any surgery. Well, that's not true with all the anesthesia we have these days, we can get through most of the people safely through some form of surgery that could improve their quality of life.

SPEAKER 1: Great. Christina, we're going to give you the final word on this. You are not only a technically superior surgeon, you are great at interacting with patients and their families. Could you comment on your approach to engaging this patient and her family and how that has a role in planning surgery, the choice of surgery, and the expectations of surgery.

CHRISTINA CHENG: I mean, I agree with all the surgeons recommendation. I think they all valid. If I see this patient and they've already undergone all the non-operative management, the last resort would be surgery. And I always tell the patient, surgery is an elective surgery, it's not something you have to have and depends on your quality of life. And so if they feel like this is severely affecting and they really want surgery,

I would give them the option of both, either doing decompression alone, decompression fusion. But obviously, definitely go over the risk and benefits of each, especially with their family in the room with them. Because sometimes they don't hear everything and it is better to have multiple ears around just to make sure everyone understands what's going on so they have the expectation of what to expect after surgery. And so in terms of laminectomy and fusion, it depends on the patient's bone quality. We want to make sure, if you're going to do a fusion, that their DEXA scan is good. You have to make sure, how bad is there bone quality? And you have to plan for it in advance during surgery.

And then, I can throw out another surgical approach. I know a lot of people do full laminectomies. There's also the option of doing midline sparing laminectomy where you can preserve the posterior elements and just do a laminectomy to decompress the central canal. And that can help provide some support to prevent any instability that you may be concerned about, if you do a full laminectomy. And I think that's an option as well, especially if she is just having a lot of just leg pain and not so much back pain.

But if you do a full laminectomy there's always that risk of instability and then a fusion would be required later on. So if she does choose the less invasive, laminectomy you have to counsel her that she may have to come back for a second surgery later on. And as long as you give patients all the facts and they understand, I think that's the best way to go about it.

SPEAKER 1: Excellent. Are there any questions about that case or other cases? Well, I think with that, we'll adjourn. And I again, I'd like to thank everybody for their participation. I'd like to thank our excellent speakers for terrific talks. And please don't hesitate to reach out to us with any specific questions or concerns in the future. And thanks for attending.

[APPLAUSE]