

Spinal Cases

with Nick Birch
19th May 2020

TRANSCRIPT

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Steven:

It's a great treat to have spinal consultant, Nick Birch back in the virtual studio if you've not seen one of our shows with Nick before. And he's very generous in sharing his immense knowledge about spinal conditions and he qualified in the eighties as a spinal surgeon and developed a particular interest in spinal conditions from 2002 onwards. He is the spine specialist editor for the bone and joint journal. He organizes the biannual bridge spine conference, a multidisciplinary conference, obviously picture focusing around the spine and more important until recently he ran a fantastic multidisciplinary centre over at Moulton in Northamptonshire. And I'm interested to find out what's happened to that more recently, but it is great to have you back with us. Thank you for joining us. Thanks so much Steven. Your backdrops changed again. Just update me if you will, because up until recently, the all the multidisciplinary centre East Midland spine you had a whole load of people, physios, osteos, chiros working there, but things changed recently. What's, what's happened with that whole multidisciplinary, correct, multi-disciplinary connection.

Nick:

Well, as you would expect with, with COVID, things changed. The status of the centre changed in January when it was purchased by the local authority and it became a leisure centre, so it was closed down immediately, locked down happened. And of course that means that we had to move everything out. So I've been running some, Zoom consultations at home. I've been doing my academic work and some, business activities as well. So keeping fairly busy, but nothing like is as busy as normal. And of course we can't run the multidisciplinary approach for chronic pain and for difficult back problems that we used to, which is a great shame. You still keep your offices over? I believe I'm there. Well, they're still there, but they're closed. Whether they will open again or not is a different matter because the board, the building itself is being redeveloped into a leisure centre. And I think what'll happen is the council will take the opportunity to do that and say, well, that will, we'll mothball on it and then open again maybe December, January, next year, December of this year, January next year. So there's a, there's a, a bit of a, an unknown there. We'll see in due course. Life will return to some sort of normality even with social distancing and, you know, hand rubs and latex gloves and those sorts of bits and pieces. So, but it's, it's, it's an evolving situation.

Steven:

You said the same thing. You were going to call this a focus on fractures and obviously we're, we're interested to see what you're bringing to the table. What would you like to start with?

Nick:

Well, should we share our screen and see what we've got, so I think one of the things that has been of interest to me over the last 20 years has been how fractures in general have been managed in the local healthcare environment, but also nationally. And that was as we discussed Steven, you'll remember, I think it was September for last when I was privileged to have you film one of our multidisciplinary team meetings and showcase the echo S osteoporosis scanner from it, the first radiation free device. And that really came from my interest in what's happening with osteoporosis and women who were being treated very well in the hospital generally, but then there was nothing for them in the community. So what I thought I'd do is put together a few cases where we can discuss these and talk about what their relevance is and see, see where it gets us.

Nick:

Because fractures of the spine are, are often very simple. Somebody falls over, they break their back, they've got terrible pain and they may or may not have any neurological injury and that's fine. They get treated okay. But quite a lot of them actually aren't treated particularly well. And I think quite a lot of people watching this will have come across folk who've had a painful back told, Oh, it's fine. It's just the muscle spasm, whatever else. Then there's some speed. Develops a fracture. Anyway, let's, let's kick off first. First case is a very fit and healthy elite veteran athlete. Lady 70 years old. She's out on a training ride on a bicycle. She does drag along and she was knocked off by a of her bicycle, by a car emerging for a drive immediate pain, the upper back. And she really couldn't keep her head up.

Nick:

And this was her x-ray, which if you look at it, there are a number of features on it that are interesting. One is that she's got a high thoracic wedge compression fracture with a significant kyphosis in the upper thoracic spine. So that's the immediate issue. Fine. When you look at the AP, there's a, there's a nice straight spine in the coronal plane. No problem at all kyphosis in the sagittal plane. But when you look at the degree of mineralization of bones, you kind of think, well, actually she must have osteoporosis. And then there may be actually a little bit of additional evidence that, do you see how the end plates down here, the lower thoracic spine are dished? Yes. Yeah. So that suggests that there has been something going on. So, so it has, she got osteoporosis despite the fact that she's a, an elite veteran athlete.

Nick:

Possibly. She's over the age of 50. She's based menopausal female. She's not particularly heavy. So therefore a body mass index is relatively low, not low normal range. And it may well be that that she doesn't actually have that. The question is what's the treatment? And you know, this could have been something that when falling down the stairs that she might walk onto hospital for, it might've given that pain, but she might have got on with it actually might have presented to one of the members of the audience with pain in the upper spine thinking, well, I might just have a muscular or a joint problem. And, and really the question then is say, how do you, how do you further evaluate this? Because the first thing I would suggest is that she needs an MRI scan because at the end of the day, you've got the spinal cord coming down the back of the vertebrae here.

Nick:

And if there's any suggestion of any impairment of that that needs to be assessed. Anyway, she didn't have that. The next thing I'll say is we'll look, she's got some evidence that there isn't a huge mineralization of bone, so she needs some sort of baseline bone density measurement. And along with that, probably some blood tests as well. Just to make sure that there's nothing else going on metabolically. Anyway, what was interesting was the couple months later she seen the fracture clinic again. And I think you could see here what the clinical problem is. And, and I, I'd be from an for an osteopathic point of view. From your point of view, I'd be interested to know how you'd approach that because he or she has got an upper thoracic kyphosis with a hyperlordosis or the cervical spine and she's off balance.

Nick:

And one of the features of the cases that, that I've got tonight our balance and spinal balance and if you're off balance, how do you actually get back to being balanced and how'd you get your head up and how do you therefore function fairly normally? And this is now two months down the line. She's still in a lot of pain. Much of which is coming from the fracture, some of which is coming from the fatigue of muscles that are trying to keep that head and neck upright and into the right position. And, and the, the fracture itself has deteriorated a little bit. That's about a 10% deterioration at the anterior vertical height. So that was two months after injury without any, any treatment. And you know, she's struggling at this stage.

Steven:

Okay. Can I ask that that kyphosis, was that there was that largely there before her accident? Do you know?

Nick:

Yeah, she had, had, had no previous injuries as you have a normal shape spine as she could stand up tall, she'd looked, she lost about three inches of height as a result of this. Yeah.

Steven:

And what was the, , the sequence for her presumably were the paramedics called, was she rushed off to hospital straight away. She was scooped up off the road by the paramedic.

Nick:

So they took in the hospital, they x-rayed said, well, you've got a fracture. She wasn't admitted. She was sent home. I think she was given some co-codamol one or similar, and then eventually left to get on, but come back and see us in the fracture clinic in two months time, which is when this x-ray was taken. Right. So one of the things that I had an issue with, I think in a lot of cases is how quickly do you look at a wedge compression fracture again. And certainly my advice to, to general practitioners, to therapists, is that if you know that someone's got a wedge compression fracture, don't say to them, we'll see you again in six weeks or two months or whatever else. Get them in quick. So two weeks max. And, and if necessary, x-ray, because if they are going to progress the progress early, the other thing that happens is as soon as you've got the first fracture, if you've got an osteoporotic spine, there's increased risk of them having a second fracture because the change changing mechanics and because you've already got fragility of the bones, then you're more likely to get a second fracture.

Nick:

So what you want to do is to prevent that, that knock on effect.

Nick:

What's the, what's the course of treatment for this lady? Then what, what, what would you have had done to repair this? Well, the first thing that I put it in a brace very well fitting high thoraco lumbar spinal orthosis. Get her into Bryce, get a comfortable, get a muscles working well, try to prevent further collapse. Then as I said, I'd have done a baseline DEXA scan in these sorts of cases, even though this was caused by relatively high. As you trauma in a 70 year old person, menopausal

woman, you have to suspect osteoporosis as an underlying cause of the fragility of the bone. So you need then to have what in many parts of the country is covered by the fracture liaison service, which is a great service whereby anybody who has a fragility fracture or essentially a post-menopausal fracture and women is then picked up by the fracture liaison service.

Nick:

And then they have their bone density, arranged within 90 days of discharge. So that automatically happens. There are some areas of the country that are not so well, by fracture liaison services. So for instance, thinking she's got one, but if it struggles because of funding, Northamptonshire has never had one. And it still doesn't have one. So these, these patients fall through the gaps of care. And, and the very baseline is you need to understand do they have osteoporosis? Yes or no. And if they do have osteoporosis, what's the treatment? But more importantly, in a humane sense, they need to have treatment for fracture. They need adequate pain relief supporting the spine. And if the fracture doesn't then go on to heal, when it may well be they may need some sort of augmentation of that. They don't need complex spinal surgery by and large. That's, that's a real rarity. But there are lots of things that you can do to make people's lives much better. Having had this sort of fracture. You mentioned surgery because somebody, I don't know the name that

Steven:

Kept themselves anonymous, they've sent in a question asking why surgery wasn't conducted straight away.

Nick:

Well you would, you wouldn't normally do with operation on a 70 year old lady, even a fit and healthy one. If you could brace them and get them into a position whereby with bracing and postural correction, you could maintain a reasonable sagittal alignment. You'd give them a trial of conservative treatment first and then if that failed, okay, then then surgery becomes a consideration. There's a case at the end where we'll discuss that actually a much more detailed cause that's actually a, that's really relevant. But the first things first is you try the least invasive mechanism first and if that fails, that's fine. However, to do that you also need to have ongoing surveillance. You don't need to this, I mean this is two months after incidence. This was a first fracture clinic appointment two months after she was damaged. That's, that's, that's a failure of follow up isn't it? I mean you guys would never see somebody with acute back pain and say, okay, I'm going to manipulate you, treat you and then come back in two months time to see how you are. You'll see these, see them a few days later. A week later, you know, you want to know what's happening, don't you?

Steven:

So given that this is two months, I mean, presumably a brace now is going to have limited effect because there'll be too much repair already gone on in that wedge.

Nick:

Yeah. I mean that's absolutely right. I mean at this stage trying to brace this would be would be very little value.

Steven:

Yeah. And so therefore, does she go for surgery now?

Nick:

No, cause this is what happened to her and this is now no treatment. Three years down the line, she's back to running back to cycling, doing a bit of swimming, swimming. She finds really difficult. And you can imagine why, because to get your head up when you've already used up your lordosis, you can't then swim to keep your head above the water. So that's a real problem. It hurts. She's, she's lost height. She's lost self-esteem, self-image, and she still hasn't had any investigation for her bone density. So you know, it's a solitary lesson. You know, at the end of the day people need to have the, the right investigations, the right treatment. And if they do manage with conservative treatment, that's absolutely fine. But if they don't, then the, you know, the viewer who said, why not an operation quite right, that should be in that plan of treatment.

Nick:

And, and actually there are, they're intermittent steps in intermediate steps. Because when you think about an operation, I think, okay, well why don't you need to have some pedicle screws put in or whatever else and the spine jacked up. But of course you can do a kyphoplasty so you can inject into the vertebral body balloon blow it up under high pressure, restore the height of the vertebra, fill that with cement and that you do this (inaudible). And that in certain cases is a very effective treatment for this sort of fracture. So, but what it does require of course, is a well-functioning service where people are alert to the issues for these sorts of patients. And unfortunately not through any fault of its own

New Speaker:

The NHS is going to not be able to offer an appropriate service increasingly in the next six, 12 months because of COVID, we are going to see more of these cases. Because the, the whole focus of the NHS has so changed to deal with this, this pandemic that now people are going to progressively not get treated. We already know that there's been no elective surgery for two months and that's not going to come back on stream for, I don't know how long. Maybe not for two months.

Steven:

Surely you wouldn't regard this if you, if you had seen this right at the outset, you wouldn't have regarded this as elective surgery, would you? I mean, we'd have to do, obviously the back brace would be the first option, but given that this is a vicious cycle here, that she's now unable to exercise as much as she would like to because of all of this and psychologically it's damaging there. Surely she should have gone in

Nick:

As an essential case. Well, the fourth case I'm going to show you shows what happens when COVID intervenes.

Steven:

Can I just ask on this one then, because Jason has asked the question about the brace, how long, how long would you have used the brace for? Had you seen her at the outset?

Nick:

12 weeks, stick her in a brace for 12 weeks. And then what you do is you, you, you x-ray in brace every, every month. Making sure that the position is maintained and then at the end of that time then x-ray out of the brace. UI mean when you do the X Ray, of course you, you, you take the brace off, just do the X Ray, but then you, then you take them out of the brace, leave them a week, let him get going. See what happens. Do some flexion/extension views. Does it change? Yes or no? If it doesn't change, then you're okay. If it does change, if you therefore got an instability and you haven't got complete healing, okay. That you might need to intervene and do something about that. And then cement augmentation would be a reasonable option. Those cases, particularly to continue to have pain, but if at the ends of the 12 week period, having had a brace, they are completely comfortable and just slightly out of sagittal balance, out of alignment, but they are accepting of that. That's a better situation than then having to go through an operative procedure, which of course has got risks.

Steven:

Sure. And after 12 weeks in a brace and I don't know what's what sort of brace you would be, you'd be putting this lady into after that 12 weeks, what sorts of collateral damage has happened then? We presume there's going to see quite a bit of muscle wasting.

Nick:

Yeah. Yeah. You're absolutely right. And, and what happens cause, so you put them into sort of a tailor type brace, which is where you've got a piece that comes right up in front here and then down the bottom, over the abdomen and over the pelvis, and then a big bolster the back and it's holding them in to extension essentially. And as a result of that, as with all bracing, you will lose muscle function. The muscles of the spine will waste. And that then needs to be rebuilt progressively. If you can brace them to however, keep them up, keep them walking. There is some mitigation of that. One of the problems with the old regimes when I was a junior doctor, we had people who were lying in bed for weeks at a time. I'm sure you will remember, that, you know, they were lying in bed on traction and when they got up there a week as kittens and it's because all their muscles are wasted away.

Nick:

And that was the same with all conservative treatment of fractures if they're in bed for a prolonged period of time. But if you could get them up and get moving, then they didn't have quite as much wasting. So it was good, good paper that we published in the bone and joint journal from Oswestry a few years ago. Looking at thoracolumbar fractures and showing that if you actually got people up on walking very, very quickly, as soon as they can actually do so with good pain control, they got better, quickest and they didn't need surgery in most cases. And the test in Oswestry, I don't know if you have been to the, Robert Jones & Angles Hunt hospital, but it's a lovely campus and they've actually got their own cricket pitch when he's old fashioned old TB hospitals where it was. And so the idea was if you wait when you could walk around the cricket pitch with the consultant next to you, you could go home after your thoracolumbar fracture. So, so we know that by keeping people who've got fractures up and mobile, then you limit the damage. But you're right. Even, even then there is there some, some, some work to do afterwards, but better to do that. When to end up with a permanent deformity and permanent pain.

Nick:

Jason's also follow up question about, about, brace, how much that wedge is likely to actually change as a result of bracing. You said that there'll be a slight deformity in the sagittal plane? Well if you, if you brace them when they've got, before they've collapsed out furthest, I mean it did the day I measured these angles. And there's about a 10% increase in kyphosis, but actually when you look at it, there's a functional increase as well. Cause you look at the two, two x-rays, they're both upright x-rays and one the one on the right is very definitely more kyphosed than the one on the left. And there's been obviously some structural change there with, with the rest of the, the non bony elements of the spine. So what does the brace do? Or the brace actually allows them to maintain upright stance and keep the muscles in good shape possible so that therefore when they come out of the brace, they're not going to collapse down.

Nick:

But the kyphosis is not only a function of the actual amount of crush of the bone, but also the failure of the guy ropes to the back with the muscles. So if you can get those muscles in at least some sort of reasonable shape, then you don't go into that first. If you didn't get the kyphosis you don't get a hyperlordosis of the cervical spine. If you did get hyperlordosis, you don't get neck pain, you don't get the inability to maintain the horizontal gaze etc. So there's a functional components to the brace as well as a structural component,

Steven:

Right? Essentially with the operation you described on a fragility fracture would actually increase the risk of further fractures, particularly either side of the repair that you've done. Quite right. It does. So the one of the problems about

Nick:

Cement augmentation is that although it can deal quite happily with a non-union, there is an increased risk of getting adjacent level fractures, particularly in the severely osteoporotic spine. Now, one of the philosophies when people were first started, used to cement augmentation, not very first, cause that was back in the 1990s, but certainly during the, so 2007 to 2010's was whether to do several vertebrae at that same time, even if they weren't fractured. So by altering the stiffness or one vertebra, you then increase the loading on the adjacent vertebrae. Therefore, if you put a bit of cement into the one above one below, can you therefore get a transition of stiffness? And that's been thought about as well. There is no truly right answer here. At the end of the day, it comes down to a balance between the risk of that happening and getting further problems versus the, the symptoms they've got.

Nick:

And that's, that's a balance that you have to then discuss with a patient and you've got to be upfront with them. Now, if you look at this lady, look at this x-ray here, that vertebra there is pretty rectangular as is that. So there's no end plate deformity here, whereas this down there, so it may well be, I would say that down the lower part of the thoracic spine, down towards the lumbar spine, that her bone density there is likely to be more impaired than higher up here. And this is after all, as a traumatic fracture. It's not a just as sort of a fragility fracture from just tripping over the kerb. So it may be that she would be okay and let Jason's, you know, he's right. There is a risk but it might be

less in her than in someone who for instance might have had a, just a fragility fracture down here and then you see the adjacent vertebrae could be at risk so totally right and have to be a that that has to be taken the consideration.

Steven:

Two more questions about braces from Lucy and Shavon. Giovanna said, would the brace be fitted at A&E or does it have to be done as part of a, an orthopedic consultant consult? And Lucy's asked whether osteopaths, chiropractors and so on, could they be trained to fit braces like that?

Nick:

Well, the second question first and that is that anybody can be trained to fit a, I fit it for brace recently on somebody. And I've never been, formally trained I've seen lots of braces, I've worked with orthotists you only need to work with an orthotist for a short period of time to learn how to put on a simple brace. There are many braces that are off the shelf and that they're very, very straightforward to put on there. As long as you get the positioning, right which any one of our, our colleagues who are watching right now will be able to do because they have the anatomical knowledge to do that, then they're absolutely fine. If they know what the principles are that the bracing is trying to do, then they'll be able to do that. So that, that's fine. So what was the first question again?

Nick:

Cause that's the second one. When this lady was taken to hospital, should a no, you can't, you can't, it's you ideally you do it an a and E, but they haven't got the bandwidth to do that. So, so effectively what you should have is that all of these people should say, okay, fine, you've got a fracture two days time, you come back to fracture clinic and then in fracture clinic, then they've got an orthotist there or some sort of outpatient bracing system where you have an off the shelf brace when you go into your brace at that time that yes, it would be ideal. If you're going to embrace from, from day one, practically that's not going to happen. But realistically it should be within a day or two.

Nick:

So what's going to happen to this lady do you think? Well that's, this is what happened. So she's, she's back to doing some sport. And she's as she is and she won her case against the driver who knocked her off. That was nice. So probably there are probably people wondering whether she's got a case against whoever failed to get her into a brace to start with. There might be, but she wouldn't win that. The reason for that is because the lawyers would say, well, the injury caused the problem and absent the injury then you wouldn't have had the outcome and whatever happened during that time has it made it materially worse? And the answer is very difficult to prove. And then of course of law on balance, you couldn't actually say that. So the, the, the answer is yeah, on balance it's probably not fit and it'll be defensible.

Nick:

Okay. Anyway onwards & upwards. Now just to show that fragility fractures are not the not unique to, to women. Because we know that in postmenopausal women there's a 50% chance that by the time they get to 85, they get the osteoporotic. Whereas in men people say, Oh, well, you know, do men get osteoporotic?. Well they do get osteoporotic but it comes in later. So it's usually after 60,

and then by the time it gets about 75, about 20% osteoporotic. So there are obvious causes for osteoporosis. And this is one, there's a 63 year old man who just had spontaneous onset of mid back, mid thoracic back pain. So mid, lower thoracic back pain. And his biggest problem actually was a bit like the last lady and that is the loss of sagittal balance. And the, that was that that was the real issue for him cause he actually found he couldn't stand upright.

Nick:

So he was, he was beginning to have to go to the supermarket and he'd have to push the trolley and then he'd be leaning forward and trying to hold himself up. So no trauma. But he had 28 year history of hyperthyroidism treated with, levothyroxin, known, risk for osteoporosis. And of course as an ex smoker, he'd done himself no favours, chronic pulmonary disease. And he'd had four courses of high dose steroids in the last 10 years, which would have contributed. So when I, when I saw him, this was his situation. So the first thing on the, the extra, on the left hand side, number of interesting features, first of all, tiny little scoliosis here. Now that neither here nor there, but if you look down at his hips, there's a little leg length discrepancy and that may account for that little slight scoliosis.

Nick:

And so, so he's just a little, a little bit out. But the sacroiliac joint look alright? But you can see here in his mid thoracic spine, he's got bridging osteophytes. He's got some source of spondyloarthropathy. Now, I don't think this is ankylosing spondylitis. It probably is a version of dish or something similar. Dif dishes. Diffuse Idiopathic Skeletal Hyperostosis otherwise known as for (inaudible)disease. So not uncommon in, in men, in their fifth, six decades. Ad often does present with some stiffness to the spine and some pain. So he's got stiffness, thoracic spine. But when you look at his lumbar spine, can you see here that there are fractures here and here and here. And then there's a little something down there and maybe something down there, but look where his head is. This is my x-ray. So when we look at sagittal balance, what we want to do is look at C7 and then you draw a plumb line from C7 down vertically.

Nick:

And what it should do is it should go through the sacrum. If it doesn't go through the sacrum you're out of sagittal balance. So you are forward and he's way off. So this is the sagittal vertical alignment, SVA, and he's probably about plus 15 centimetre. So the maximum you should be at about plus five. So when you look at someone, examine them, look at them from the side and see, do they have a good centre of the neck, I. E. centre of gravity that fits over the pelvis. They're standing upright, straight, nicely balanced because, because if they're not you, you know, you can imagine what's happening to the here. They're going to fatigue very, very quickly. And of course that means that he's tipping 40 or more if he's got an underlying bone fragility problem that how did lose the increase of S, under crabs and moving forward is just to make the whole problem worse.

Nick:

So he is presented with an episode of back pain, but on the plane X rays here, he's got multiple fractures. So we know that there are fractures that occur without symptoms. They're called morphometric fractures and there are fractures that occur with symptoms. They're called incident fractures. So here's instant fracture probably is this one here and I say that. So this is an MRI scan. So you can see here L5, there's been a fracture there. L4, L3 is a bit dished, L 2 L 1T 12. And then up here, this is where he's got his degenerative change. But on this T one sequence here, there is

dark signal within the bone here at L1 and dark signal is edema within the bone. So that suggested that that's the most frequent, most recent. So actually he's had all these other fractures without knowing about it. And there's another one up there without knowing about it and just this latest one is caused in trouble. So that's quite interesting.

Steven:

Yeah. The what the, the, the vertebra above that is the one that draws my attention. That looks dreadful. But you're not, you're not singling that one out.

Nick:

No cause actually on the T two there is no real high signal there. You've got a little bit of high signal on a lot of the, on the end plates but a lot of that. But look, look here you got this dark signal within the bone or that one there, but there's no dark signal in there, which means this, this occurred sometime in the past and it healed. So, so the question then is what do you do if you're a therapist faced with someone who's got risk factors and this is where you really need to know about the risk factors for osteoporosis, not only women but also men. So face with someone who's got spontaneous onset of pain that is slightly different in its nature, its presentation from the usual back pain. So usual mechanical back pain. We all understand, which is fine, you know, comes on with activity, goes way at rest, these sorts of pains.

Nick:

Usually they are better with rice, but when they roll over it's frequent that they, they'll be very uncomfortable and as soon as they go up and load, they will then start to get pain. And if it is thoracolumbar as opposed to low back, that should begin to bring a few bells. So over 60 male with a history of smoking, history of steroids and hyperthyroidism, beginning to sort of bring those belts. So secondary causes of osteoporosis or are well, all of the gut disorders that cause malabsorption. So celiac disease, Crohn's disease, ulcerative colitis, they do it. Chronic liver and kidney disease, thyroid disease all of the auto immune diseases, all of those do that. Taking steroids those, those sorts of conditions. So smoking. Great one. If you smoked all your life, your bones are going to be less good than if you haven't.

Nick:

So if there is a history and this is, this is really a case where it comes down to how good a history do you take? One of the things that I observe in young doctors these days is that their history taking skills have somewhat atrophied compared to the old days because they've got so many really clever tests that they can throw at people that they'd rather take a very brief history, throw a bunch of tests at it and see if they can make a diagnosis that way. So old lags when we trained in the 1970s, 1980s. The, the key was take a really good history cause that'll tell you the diagnosis in 90% of cases, do a proper examination and then do some special tests. So we've changed the medicine a lot. But yeah, I mean you can tell me, Oh, are osteopaths trained in taking good detailed histories and as a result of which they can make a very good as to whether what the clinical diagnosis,

Steven:

Yeah, I would like to think that they and chiropractors and physiotherapists of course, because obviously we don't have those special tests available to us in clinic. So we spend a lot of time on

telling us about getting case histories and you are of course the first orthopaedic surgical consultant to come on the show and say the case history is everything. And after that, so your tests to confirm the diagnosis rather than creative. Jonathan has asked whether they're taking more x-rays standing now. And I have a supplementary to that. I've never, never had a standing X Ray myself. Does, does what they do with you in the X Ray machine, does that actually alter the way you stand? They got you leaning against a plate or,

Nick:

Well, the answer to that Jonathan is that I wish they were taking more x-rays standing in certain places, around where I work, but I've been banging my head against the wall for 25 years and they still won't take extra standing. In all spinal centres where they do proper spinal work, they will take erect X rays. And they do it in a, with a protocol where you stand up against the board and you, everything's is standardized. That's absolutely fine. And of course if you then need to do upright flexion extension views to see what the stability of the spine is, you can do that as well. There are still some backwaters where they refused to take standing x-rays because somebody wants told them a century ago. But that takes more x-rays than a lying down x-ray. Therefore you have to do a lying down x-ray, even though it's manifestly ridiculous to try to look at the spine deformity in the supine position. So, so there are still some places that will not do upright x-rays, but thankfully most sensible places that look up spinal cases will do and they do it to a standardized fashion. Okay.

Steven:

You were saying before we went, we came on air that actually if you were planning to injure your spine, you best not do it in Northamptonshire.

Nick:

It's a bit of a desert, isn't it?

Steven:

Robbins asked whether a stir sequence would help to diagnose fractures, particularly for those of us with less practiced eyes than yours.

Nick:

Yeah, actually that's true. And I'll show you a STIR sequence later, which actually shows it up very nicely and you're up. He's actually right Robin. You know, stir is a great sequence because it shows the, the oedema really bright. It suppresses the fat signal. So on this, this picture here T2 here you've got bright signal within the CSF, but you also got a lot of bright signal of the fat. And then when you look at the vertebrae thing, well, okay, is that bright signal? They're fat or fluid. And it's actually difficult to know here you can say because it's dark, it's on a T one, therefore it's fluid so that that's complimentary but stir sequence that would then share that up. So if that really was a fracture or a recent fracture, then you'd certainly see that bro.

Nick:

Nice and bright. And I'd just say, I'll show, I'll show you, I'll show you some stuff sequences shortly and don't you see that? But I'm at the end of the day. They've, the variety so you can see they have are very useful when you also you go on the, the spec CT now has become quite important and pet

CT as well. Cause those, those tests which are much more specialized, much more expensive as well. They, they actually begin to show you if there is still residual healing capacity in a fracture. So you can see if there is an issue 10, 12, 14 weeks down the line. I think we, we've spoken before Steven about bone stress injuries particularly in, in pars defects. And those sorts of tests are very useful for those fractures to see whether someone has healed it, bone stress, injury or not, when it isn't necessarily apparent on the, the less sophisticated imaging.

Steven:

Well, what's the difference between those two CTs spect & pet?

Nick:

Oh, well, a Spect CT is basically a bone scan. It's a, as a single photon emission tomography, bone scan then married to a CT scan. Therefore it gives you anatomical data on osteoblastic activity in whatever area you're looking at. That's fine. A pet CT is a positron emission tomography, which is a different nuclear medicine technique. It gives you a fancy picture with lots of colours and it tells you all sorts of things used mostly for oncology diagnosis, but it can be used in, in bogey lesions as well. But SPECT CT is the more common of the two.

Steven:

Okay. if I make on a drag you back to the previous case Matthew sent in a question saying that given that there was no density scan, would there be any point in starting your own Vit D3 ,etc? And would that have any positive effect on the outcome of subsequent surgery if later needed?

Nick:

Yes. Yes, yes. Yes. Start on calcium, vitamin D three. Well, the first thing to do of course is as I said that yeah, based on baseline bloods, so a baseline vitamin D level absolutely required. So in athletes we would really want vitamin D levels to be at least 75 nmol per litre and North of there at the moment, the standard recommendation for Vit D levels is that you're okay if you're 15 nmols per litre. If you're between 30 and 50, you're a bit deficient and you need to take a few bits and pieces. You have some D3 but above 50 you're probably okay. Well actually the updated evidence is that if you're less than 75 even for a sedentary office worker, you're probably going to be a bit deficient. So you should be able to get two or one 75 in athletes because D three is such an important vitamin in terms of repair of tissues and maintenance of health of a lot of different tissues.

Nick:

Then really athletes should be above a hundred. If you're below 30 going the other side of that, you're severely deficient. Then you've got to have high dose treatment first to bring you up into the sort of 60 70 range and then you can have your treatment. Interestingly in the time of COVID, or as (inaudible) would have said at the time of plague it looks like Vit D3 is quite protective for quite a lot of these viral infections, mainly because it maintains your immune system, particularly in the winter months when we don't get a lot of, and that's, that's supplementary D3, right? So, so if you're taking a thousand or 2000 international units of Vit D3 three a day, then that may have some protective effect going through the winter when you're not out in the sunshine now as it is today, it's been a nice warm day.

Nick:

Get on the sunshine 20 minutes. So it'd be in the sunshine with a bald head and some bare arms and, and you've probably got enough D3 from the sun, which is fine, but in the winter time when it's wet and horrible, miserable, you're not out. So realistically, we all ought to be taking some D three. That's a given. This lady should have been investigated, found out what I did three years and then gone on from there to have some treatment if she issues low. So but that's, that's true calcium. Yes, but it's better to have calcium in the diet rather than having a supplement. So the best way to find out whether your calcium is adequate is to do a dietary audit. So that is you write down everything you eat, how much, what it is over a week, and then you go onto the Royal osteoporosis society's website, have a look at their calcium vitamin D calculator.

Nick:

Work out how much calcium you've got in your diet. If it's less than 700 milligrams per day, then you've not got enough calcium. You could supplement that by just taking somebody who's got a bit of extra calcium, either a yogurt or a glass of milk or an orange or something like that, or some nuts. They've got plenty of calcium. If it's less than 500 a day, you're probably going to need to supplement. The question is whether this lady should have been started on alendronate and so, or some other bone stabilizing medication. And that's really, I think after a fracture such as this could only be decided upon following a bone density scan. But so calcium has been absolutely a DEXA scan. Yes. Maybe right after that.

Steven:

Okay. Thank you. In terms of D3 levels and so on, I don't think we've had a single speaker come on the program or I don't, I certainly haven't seen anybody in the things that I look at online who hasn't said that the, the base level of D three of calcium should be much higher than is quoted in NHS literature. How long does it take for nice guidelines to catch up with what everybody seems to think?

Nick:

Well, probably a decade. And the reason I say that is because if you remember in 2009, they came out with the low low back guidance and that was CC 82 or whatever it was and it took them until 2016 17 to revise that to, to get to the current guidance. So almost a decade. And that is in a, in a, in an area where the condition hasn't changed very much. The evidence probably hasn't changed very much either. So, so realistically, you know, are they going to be any, any better for osteoporosis for, for calcium and vitamin D three levels? Probably not is the answer. So it might, it might take until the middle of this this next decade before they actually sort of come around to the fact that vitamin D three levels should be much higher than the current recommendations.

Steven:

Matthew asked a question about dish, which you mentioned earlier on. Is it not usually on the right side of the spine?

Nick:

It's okay. The reason for that is because it was thought to be cause the pulsation of the aorta stops the additional ossification. So when you see, so that's why I said it could be dish, but it could be it on those other spondyloarthropathies because it's actually on both sides, but it didn't look as there is

Ankylising spondylitis cause they have quite the appearance of the bamboo spine. So an interesting pattern, one that could be further investigated spondyloarthropathies of course are increasingly recognized as being causes of chronic low back pain, mid back pain, stiffness, et cetera. And we now recognize that many of them have gone undiagnosed in the past because we've been looking for Sero positive stuff and then they've looked at the classical syndrome with gastric related spondyloarthropathies et cetera. And actually we probably be missing quite a lot of them.

Nick:

And there's certainly sort of psoriatic arthropathy is I think underdiagnosed so it could well be that there are, there is a, an under undiagnosed spotlight. Obviously they're loosened, got asked about. When you said about lots of sagittal balance, is it actually a loss of balance or do you just mean they can't stand up, right? No, the term, the term loss of sagittal balance means that you are no longer balanced and aligned. If you think about the spine as a, as an S shaped spring, what you have to have is a series of defined parameters that show you when your line of central gravity runs. So when we look, when we look here, the, the balance lines that go and going back to this, I mean, yeah, I mean you look at that and there's, there's ankylosis on both sides. Not much. There is, is, is that, is that dish, is that something else? Dunno? It's a, it's a spondyloarthropathy .

Nick:

We haven't investigated, so I don't know. Now thinking about sagittal alignment, what you've got is you've got the hips, the pelvis, the lumbar spine, thoracic spine, cervical spine, all playing a dynamic role in your overall balance. What you should have as your head is then the centre of the head should go down through the central [C7, should run down through at least somewhere in the body of S1 that's balanced. The reason for that is biomechanically. We have this cone of efficiency that when we stand up to be able to stay and using minimal muscle activity we have to stand with our central gravity aligned with our head over our pelvis. And that means we could stand pretty much the whole day and you use hardly any effort at all. Therefore it's an efficiency and you can move within that a few degrees, maybe five degrees, and you're still within that code of efficiency.

Nick:

And that's, that's what's happening there. Move out of that. And then of course what happens is that the guy ropes kick in. So all of the extensors here have to actively contract. So the whole, this person up here with their centre of gravity, the centre of gravity, if you draw a plumb line from C7 downwards centre, gravity is way forward of S1. Now that is a dynamic loss of sagittal balance in the sense that you've got the static loss of lordosis here cause the fractures, but you've also got failure of the muscles at the back and is that is the most important. Now I don't suppose to anybody who's listening to this program has not seen somebody pushing a shopping trolley around the supermarket leaning right forward on it like this, almost been to have a double or so somebody walking around with them where there are behind their back leaning slightly forward but your arm behind your back, what you're doing is you're bringing your centre of gravity from here slightly there cause you're bringing some, some pure body parts backwards to try to maintain your upright position leaning forward.

Nick:

That's the classic stenotic position. But it's also these people who lose sagittal balance. They have to have something to balance on because their muscles are so tired they can't hold them up. And

eventually what happens of course is that they end up doing this. They, they, they end up on walking sticks bent over double because their muscles completely a waste away. They get what's called sarcopenia. So sagittal balance is crucial. We've really come to realize it in the last 10, 15 years that if you, if you don't have the correct sagittal balance, then you end up with all sorts of spinal deformities and that's, that's actually become a very major part of modern adult spinal surgery now. And people doing very complex cases to, to correct these very difficult deformities in elderly people who've not only lost the structural component in the spine as in the vertebrae, that discs, that joints, et cetera, but also the functional part.

Nick:

And that is the muscles. So really, really important topic . Someone has asked about alendronic acid, which I think you referred to earlier on. Do people cause that cause problems? He says he's had some patients withdrawn from it because of hip pain. Okay. So alendronic acid is a great drug. So second, second generation bone stabilizer part of the bisphosphonate groups. What it does is it suppresses osteoclastic activity. So you therefore get unopposed or virtually unopposed osteoblastic activity. Now we know that bone remodelling requires that there should be a balance between osteoblastic osteoclastic activity so that your, you're laying down immature bone, that that gets progressively remodelled into mature bone. The strong bone of that then follows Wolff's law and that is the bone is laid down where it's required to cause the forces applying it through that area. If you don't have osteoclasts, you can't remodel bone.

Nick:

So therefore you get relatively immature bone. So one of the side effects of this (dog barks!) treatment, not just alendronic acid , but all of them, is that you can start to get atypical fractures. Now if you go to a dentist and say you're on an alendronic acid, you'll normally up there will be a sharp intake of breath. The reason for that is dentists recognize that they see a lot of people, particularly women, postmenopausal women on, on bone therapy who have loosening of teeth. Now there is a specific condition of the jaw called avascular necrosis of the jaw, which is a recognized complication of alendronic acid . But leading up to that is, is loosening of the teeth and pain associated with that. And dentist recognise that very frequently. And so they don't like out alendronic acid. And in the same way that they, the hip pain is that you can get what are called atypical fractures, the femur.

Nick:

So these are fractures on the lateral side of the femur below the trochanterin an area you wouldn't normally expect it. But it's all to do with that mismatch in remodelling between the osteoblastic and osteoclastic activity. And the fact that you don't get that strengthening of the bone where, where the, where the stress is applied. So it's absolutely right that alendronic acid is not without complications. And what's interesting, I mean the major complication alendronic acid of course is, is indigestion, cause you have to take it on an empty stomach, standing up, take nothing after that for 30 minutes and maybe glass of water, whatever else. And there are many women who can't tolerate that. So if you look at a cohort of women who'd be diagnosed with an a fragility fracture, started on alendronic acid plus calcium, vitamin D three within six months, 60%. That's when we'll stop taking alendronic acid because they can't stay on the side effects.

Nick:

Is that long enough for it to do some good? No. Right now, how long were they, how long would you expect him to stay on it? Well, it normally is three years. Re redo the bone density for three years. The bone density stabilized society and improved. Then you can have a holiday for two years. Redo the bone density. Has it stabilized? Yes, that's fine. Keep off it, redo the bone density two years later if it's gone down, restart them for and cast it. So alendronic acid has got a very long half-life, so it stays in the body and it's fixated to the bones for a very, very long time. So it keeps doing what it meant to, to not, it's not just there for a few days, it's literally there for years. So you don't need ski taking it. And the old days when people thought, Oh, you take it for 18 years or whatever.

Nick:

That was overkill. And I think that's where quite a lot of these complications or from, so now if you have it in effectively short, short doses, I E three years, maybe maximum five years and then you reassess them, that's fine. The problem is that the standard protocols for DEXA scanning in the NHS don't allow for that level of maintenance therapy for an awful lot of women. They just haven't got local resources. So, so you have to therefore be much more proactive about getting your own scanning. I mean, I see a lot of women who come to me for bone density scans and who are just unhappy that they're not offered the same process in the NHS. And that's because the resources are limited. And so that's, that's, that's not going to get better anytime soon.

Steven:

No, and I'm very sorry. I see that the Corona virus stopped you from coming into my own clinic and demonstrating your equipment there because a lot of interest in that and I wonder whether we going to do it online somehow.

Nick:

I was looking forward to actually coming and scanning a few of your staff and seeing exactly what they're out there looking at because I suspect some of them will be fantastic and some of them might have a little bit of it, you know, a bit of a shortcoming to them because if they've got a body mass index down in sort of the high teens, but it's a 19 they get to be a little bit unhappy that they're osteopenic.

Steven:

Do you think, do you think we could do something online with it?

Nick:

Well you can't do a demo scan online.

Steven:

Well, I mean, well, you could do the same as you're going to do in the clinic, couldn't you? If we, if we did it in a sort of suitably sanitised environment with a camera on.

Nick:

Yeah. I mean, react. Come on Steven. Reality is I'll coach you clinic, get the talk, you know, they can sit two meters away from me where mass they want to, I don't care if I get credited, doesn't matter. You know, I can sanitize myself, but then, and then Claire can volunteer to have a scan and then she can vent.

Steven:

Claire could volunteer if she could get back from France , I can't go over to France!. I, I am very well sanitized from my wife.

Nick:

Yeah. I had that conversation with a patient today actually. He said that he'd love to go to his house in France, but he can't because they won't let him get them to the channel tunnel. So anyway,

Steven:

We should, we should get back to the subject. Shouldn't we? Sophia's asked about lumbar fusion and could that cause a significant sagittal imbalance?

Nick:

Yes, it does. Frequently. And she's absolutely right. So severe. There's obviously seeing someone who's got a flat back. And I think that that was a really, really serious problem back in the day. And that was before people understood that you had to have proper restoration of lordosis. They would fix patients in a kyphotic position and that was a disaster. And then, you know, not surprising me, there was a generation of people such as myself who spent time revising the errors of the past, trying to get these people out of there. Can I kyphotic position? So she's absolutely right. Lumbar lumbar fusion. When it's done well, where the put by a person who understands all of the parameters the, the spinal pelvic parameters then it's fine. But if it's done badly it can cause more problems than, than it's solving.

Steven:

And just one from Laura before we move on to your 90 year old chap. This is probably for later, but she's asked if you can share the link to that national osteoporosis society tool that you mentioned about measuring your own bone density or your own calcium levels.

Nick:

Well, they, yeah, it's a calcium calculator.

Steven:

Yeah, she's trying to look for it and can't find it. So we can put that up on the website afterwards.

Nick:

Yeah, I'll, I'll what I'll is, I'll actually send you the PDF which I have I'm available, which is what we'll post that with the recording of this prescriptive. That'd be fine. Okay. Now, interesting. If you're 90 and you're male, you got to be osteoporotic. The question is should you be treated or not?

And, and I think what's been interesting about the Covid business is, is, are asked you to elderly folk and as a society particularly people in care homes. So with this guy, isn't the care home, he's a completely or was, he was completely independent. 90 year old. So best buddy of a colleague of mine, a surgeon, that was his dad. So this guy looked at essentially was his uncle. He tripped down two stairs three months ago, developed a T12 thoracic spine, couldn't move for weeks.

Nick:

And his wife who's 92 looked after him at home. And they, they, they didn't want to disturb anybody and didn't call the GP and they were, and then he could get up on crutches. He went to see his local therapist and the crutches and needs to be mobilized and that, but he really can't, can't get going, can't stand up for more than 15 minutes. And he's got this, now this is, this is interesting because this is a 90 year old spine, so he's got a fracture here. So this is called being called a wedge compression fracture. Now Steven here, I got to put you on the spot. Do you think that that is a wedge compression fracture? I wish I could see it. I've got a camera in the way I'm afraid. Okay. All right. Well the longest shot is, I don't think it is. And the reason for that is because when you've got a wedge compression fracture, if we go back,

Nick:

Look at that wedge compression, the characteristics are that is wedged, that is, the vertebral end plates are intact. What happens with a wedge compression fracture is that the trabeculae the anterior portion of the vertebra, these are the, the trabeculae that are most affected by OP these collapse. So the whole thing then comes down, but the end plates are intact. The other person is this where you get bowing at the end plate, but then you get what this is. This is called a codfish vertebra where you got to upper and lower end plate. Bowing and apparently according to some radiologists that was like a Cod fish. I've got no idea of why cause they're not, they've got like codfish to me, but it's, that's what it's cool.

Nick:

Look at that. That doesn't look like a wedge compression does it? What you've got end plate intact there and end plate intact there and then the whole of the anterior part of that vertebrae is squished flat. And what would call that is vertebral plana? Now vertebral planar is a, is a radiological diagnosis of flat vertebra. So this isn't a wedge compression which is what it's called by the radiologist it is vertebral planar has a different implication from a wedge compression fracture. Whereas compression fracture in 90 year old, particularly if as I showed previously, if there are other areas of the bone that look as though they might be osteoporotic, that would imply OP. But this to my mind throws up a different set of diagnoses. And in this person, what I would do immediately is think this is a pathological fracture, that this is, there's an underlying cancer at some sort of here and the commonest bone cancer in this group of people is myeloma.

Nick:

So what I would be doing with this person is the immediate myeloma screen and then an MRI scan to see what's going on because this is not typical osteoporotic fracture pattern, even though that's what's been called. So I confess, if I had somebody said to me, if I, if I had a report from a radiologist saying it's a wedge, a wedge fracture I would have accepted that because I'd never heard of vertebrae plana before. Yeah, I know. Interesting, isn't it? Hmm. So what you would have accepted though is a wedge compression fracture in a 90 year old man who can't stand up, right?

And you can see here, so again, going back to that question about balance, look, look and see where his spine is heading off there. His head's going to be over here somewhere. He's way off. He can't stand upright. Are you going to accept wedge compression fracture due to osteoporosis in a 90 year old otherwise fit and healthy man, you can now only mobilize using crutches continues to have pain three months down the line and he's had no treatment.

Nick:

No. So here is where the extra thinking kicks in. So this, this was exactly as you said, it was labelled as osteoporotic fracture. I was asked to have a look at the X rays and given the opinion and I say, well, I don't think, I don't think that's entirely reasonable. I think you've got to think wider than that. And he's going off and having extra tests. Now we'll find out in due course they will be that he does have osteoporosis. That's a possibility. But also I think you got to think about why the diagnosis, if he's got myeloma, underlying this or something like that, then certainly the treatment is quite different. So, but I think the point here, Steven, is that you've got someone who's got persistent symptoms that doesn't fit in well with the perceived diagnosis and therefore we as clinicians was always be thinking with our, with our blinkers, not here, but out blinkers out there somewhere.

Nick:

What, what could it be? You know, if you, you know, I mean I, I've, I've been around osteopaths for long enough to know that all decent osteopaths, if they can't get somebody right in four or maybe five treatments, they're going to say, look, let's re-evaluate this, this, there's something going on here. You know, if you've got a mechanical problem, you should start to respond in four or five treatments. If you're not responding four or five treatments, we've got to find out what's going on here. This is the same in this, this situation whereby it's all about thinking clinically. Okay, is the patient then following the, the natural history and if they offer a natural history, fine. If they're not, okay, let's reconsider. What's the diagnosis or the diagnosis from radiologist? Could it be that diagnosis might not be right? Question the diagnosis question the radiologist.

Nick:

I think and if, if, if people aren't willing to question the radiologists get at least a second opinion from a a spinal person who is prepared to do that. And I know it's difficult sometimes if you've got consultants who are high and mighty and you know, don't like being challenged and you know, sort of get a bit hoity toity. And also of course you see a lot more, a lot more of this imaging than we do as a, as a rule run. Do you have much video access to the imaging, the regular, but my point here is actually is about the clinical side of things and that is that three months being able to mobilize or crutches and only be able to stand for 15 minutes. I'll be, are we going to accept that is then osteoporosis, whatever it says and be controversial here.

Nick:

I know that, but that's why we like it equally. What I would say is that don't be frightened of questioning what might appear to be received wisdom. Don't be, don't be worried that actually that if somebody is going to jump up and down and scream and shout, yeah, you're a clinician, you're a fully trained healthcare professional and you have as much right to question that diagnosis as anybody. If it seems that that does not fit with the clinical situation. So what is the, what's the outcome for this gentleman here? What has he actually, he's having his own blood tests and he's going to have an MRI scan and I will, I will review those in due course and you know, we'll find out

and if it, if his blood tests show that he's got myeloma, you'll need myeloma treatment and you'll need that injected with cement. Cause that's clearly not healed and it needs to be stabilized because, you know, with myeloma, they don't heal. That's the trouble. But they do respond very well to cement kyphoplasty. And has he got OP? Possibly, but you know what, for 90 year old, those bones don't look too bad. That same. You can see the calcification is your audit. Here he's probably got more calcium and is able to, then there's his bones, but that's not often the case.

Steven:

Shavon has asked a question about the, the objective signs that you said that didn't fit in his clinical picture there. Is it the fact that he couldn't mobilize without crutches?

Nick:

It's that and the fact that he can't stand up for more than 15 minutes failures of stand. Normally if you have got a painful back then you support yourself from crutches, you should be able to stand up for a reasonable period of time because you're taking the load off. But if you can't, it does suggest that there is a structural problem that is not then allowing you to bear weight through your spine. And that's not just going to be fatigued muscles. That's got to be something different from that. So, so that's really the bit that's waving the flag. The fact that he has severe pain is it's three months down the line. He should have been showing signs of healing. The pain should have been getting better if osteoporotic. So, and realistically I think when you put it all together, it's just a matter of saying, okay so he's got persistent pain. He can't stand up straight needs crutches and he can't stand for long. That's saying to me there's something more going on here potentially.

Steven:

I've got quite a long one here, which is potentially quite cheeky cause they're asking you for a spinal consultation. I think through this one. It's anonymous. I have no idea. Well you can send you a bill afterwards. They've stayed anonymous so I can't dilute it at the moment. And they ask you, they can pick your brain about an L five spondylolisthesis with bilateral pars defect causing severe symptomatic sciatic nerve compression on the left, which the consultant is keen to perform surgery on. He's controlling the discomfort quite well and can sometimes be almost pain free. However, there's always a tension sensation through the left glute that's impossible to stretch. It's not painful, but it's usually annoying and nagging. Do you have any ideas? What could be causing that glute sensation and giving you advice on how to reduce it. Also, what are your thoughts on inversion tables for complaints such as this?

Nick:

So inversion table was the first thing that actually occurred to me that one is the gluteal pain is certainly that L five nerve root irritation. And when you look at it, you're with spondylolisthesis. Lytics one of States as they have obviously a significant degree of foraminal stenosis. Once the disc is degenerated and so there's up, down stenosis and the nerve is getting trapped. So if inverse then frequently you're going to have an improvement of the symptoms. So I, a long time ago, I, as you know, Steve and I have an inversion in my office and very frequently people would come along with things like spondylolisthesis. I'll pop in, pop them on, invert them for 40, 40 degrees for about five minutes. And if having come in, they're uncomfortable and they've got some buttock pain or a little bit of thigh pain or perhaps a little bit of that foot calf pain.

Nick:

Then soon as they go on their inversion table, they go, Oh, that's wonderful. And then as soon as I stand up again, Oh my God, it's back again. You know, that's actually posturally related. And it may well be that inversion is the right thing for them. So what I then suggested as I get off of buy from Amazon, eBay, if you like, Amazon's more liable, a hundred pound inversion table. There are plenty around that are quite like your quality starts off with five minutes morning, five minutes evening, 40 degrees. They all, have a tether on them so they can get, and you can just do that about 40 degrees after about a week or so, then increase the times 10 minutes morning, Tim, it's the evening. So you get really comfortable, maybe 15 minutes, twice a day. And if it's then beginning to show signs that it's getting better, then you can go to 70 degrees in version.

Nick:

And then if you really want to be hardcore, you can go fully inverted and start to do all the funny things they do on the other (inaudible) website. So in inverted the et cetera, if that keeps somebody comfortable and they've got spondylolisthesis and they don't then need an operation, then that's fantastic because of all the low back operations, spondylolisthesis has the best outcomes clinically. However, it also is recognized as being a difficult operation for many people. And there are significant complications that can occur. Not least, the fact that in lytic spondylolisthesis, there's been there since the, the teenage years, the L5 pedicles are often very small. And to be able to get a pedicle screw into the safety can be extremely challenging and therefore it's well recognized that L5 nerve root injuries are a potential consequence. So if you could stay away from a surgeon with his knife and his willingness to, to injure you, just to satisfy psychopathic tendencies, then do so. And it was inversion table. We'll do that. That's great. And if you can't, well then go see mr. Chop a lot! Enthusiastic neurosurgeon who hopefully he's going to do a good job. But my advice there is pick your surgeon.

Steven:

Thank you. And of course you did actually do a demonstration on a inversion table for us once in one of our evening broadcasts that'd be on the website somewhere and recordings you refer to the Tito website because Teeter tables is a brand name for one, one for inversion tables.

Nick:

And I know that they were, I mean, that was, it was, it was whatever I didn't have, it was actually mr Teeter who actually invented or whether we thought that actually teetering on the brain can be inverted, was the right name for it or whatever it was, wherever that came from, but that Tita have, but they have a very informative website. It's, as you'd imagine, it's now a nice American corporate website with lots of nice videos and good looking people. They're doing lots of good things. They're smiling and saying how wonderful this is and the best thing since bread came sliced. Etc. But you know, it's, it's quite informative and there's quite a lot of good fun stuff on that.

Steven:

I've always assumed it was because Americans called seesaws Teeter totters but so

Nick:

Well they may well be. That may be the case. That's possibility. I wasn't aware of that. So yeah, that might be answered. So

Steven:

I'm Elizabeth has asked whether in your experience as a short delay between trauma to an osteopathic spine and the actual collapse of the trabeculae say that again. It is within us whether in your experience there is a short delay between trauma to an osteoporotic spine and the collapse of the trabeculae. I'm not quite sure how you would know. Right.

Nick:

So the answer to that is

Nick:

Probably not in the, in an absolute sense. And that is that the trauma will initiate the fracture. But what I think Elizabeth is getting at is that what happens in the week or two after that be ??? Issues is what she's getting at because she's absolutely right. And that is that you can have a, you can have a few microfracture to begin with. And actually when you do an X rate to begin with, if you haven't done a really good x-ray and a really looking hard for the problem, then you might miss it. And then two weeks down the line they come back to fracture clinics. So what pain standing up x-ray, Oh now we've got the wedge. So she's, she's correct. But the, the degree of fracturing can change over a period of time. And in that first few days, few weeks certainly go from what is a very minor wedge compression fracture to a more significant one. That is the reason why there should be a really high level of surveillance for people coming in who are presenting with fragility fracture symptoms and really looking at looking very hard at the evidence and saying, okay, is it possible this person does have a fracture? Yes or no? If it's absolutely clear that they don't have, okay, fine. If that turns out subsequently they do have, then we looked hard for it. And if there is some evidence then we have, we found it and then we can treat them

Steven:

A quick one on inversion tables again. Are there any contraindications to using them? Nick, lots of them.

Nick:

Anybody who's got cardiovascular disease so unstable blood pressure. Angina, if you've got a some sort of pacemaker loop recorder, all of those cardiovascular problems are contraindication. People with a benign paroxysmal positional vertigo. BPPV they, they hate it cause, cause if you got BPPV, I don't know if you ever come across that, but that's where you change position, then you started go from sitting to lying or vice versa and you become very dizzy very quickly. You start to put them on an inversion table, you'll have vomit all over your floor. Is that, that's not going to work. So people vestibular problems contra-indicated people with cardiovascular problems. Contra-Indicated I think also phobias, I mean there are some people were actually are phobic about being strapped into

something. So, you know, cause you have to have feet strapped in so people who don't like going on roller coasters and having that sort of degree of a restraint, probably a best, not trying to.

Nick:

Okay. I think we've got a few minutes left. Did you have one more case for us? I have. So this is interesting. So this is a manual worker. Involved in a car accident. This is where, going back to what I said earlier, history matters. So this car rolled over a number of times and it was flattened. Bear that in mind. So the roof came down and squashed. This guy's about six foot four. So if you're six foot four and the roof is here and gets down to here, you've been squished down, you lost consciousness of five minutes. Well that was the impact of the roof hitting his head. He was taken to the hospital, Blue lighted in, had pain, his thoracolumbar area, and no neurological loss. And then he was given some pain medication, felt a little bit better. So they told them to go home.

Nick:

Why? Because they were clearing the hospital out because of Covid, now he had a CT scan. The CT scan was reported as showing no fractures of the spine, but he was very uncomfortable. And his aunt was a patient of mine, had had a fracture of her neck that was missed in London and subsequently came to see me and we diagnosed it and treated it. And that was fine. And she asked a few days, said, look, with your persisting pain, I am suspicious that you might have said done something. You need to go see an Nick and find out what's going on. So, so I saw him and looked at it as a CT scan. Now this is a coronal CT scan. So this was not looked at in this way by the radiologist. And this is a failure of radiology again. And this is not to get it.

Nick:

Radiologists, I think they did have a difficult job to do that they've got the tools in front of them. I mean, anybody can stick up one of these reconstructions on the, on the sophisticated PAC systems they have in hospital and it wasn't done. But can you see here? There and there, little fractures and here, and I looked at these, so this is a week down the line. I've looked at them. This is that this was done on the day of the actually injury. I thought, hang on a second, this guy's got some fractures and when we look at the sagittal view, do you see there is an indentation and that doesn't look right and it just didn't look quite right. And then there was another one going the other way. Yeah, they were just there. Yeah. Okay. So there's, there's multiple abnormalities in here.

Nick:

This was a force as being normal. And below that here you see you go back one, there's a split in the vertebra there and there's a split across there and there were fractures the back here anyway. So I said, well I think you might have some fractures in your back and the fact that you've got persistent pain a week down the line that you can't stand up straight. And then when you do stand up straight, you have to put your hands on your thighs to hold yourself up because actually your back muscles aren't working. Probably indicates that you might have something going on. So we did some X rays and we did an MRI scan and this is the MRI scan. Now who was it said earlier with a stir sequence show things up very well because that was Robin who was obviously paying attention during our MRI broadcast last week.

Nick:

He was, because Robin actually this is the stir sequence and of course what you see here is he's got three fractures in his back. He'll be discharged until, there's nothing wrong, but more importantly, remember what I said about being squashed like this. Do you remember the old lap seatbelt injury that flexion distraction injury whereby the access of flexion is way forward to the spine and when that happens you effectively you, you, you bend forward the spine, but you pull it forward as well and it tears from the back forward. Can you see here there there's a gap between the spine as processes? Yeah, that is a flexion distraction. Injury of T 10, 11. Now, if this happened through bone, it would heal very nicely, 95% of the times and you'd get away with it. The trouble is that if it doesn't go through a bone, if it goes to the supraspinous ligament, the interspinous ligament and the healing is less certain, 50, 50.

Nick:

So, so this has potential instability and what we have to do is have to really monitor this. Now, when he was discharged from the hospital, he was then given a, uan appointment to go back to the fracture clinic two months hence. So they contacted me and I'd been around to see him at his house and, uI fitted the brace so I happened to have a brace just an off the shelf and that was fine. Um, t you can see here he's got, he's got a fracture here. Um, T10, T11, T12 uh, three fractures, flat, u, extion, distraction injury there. And then when we look at the axial view, there's the fracture going through the sagittal split fracture. And then you can see here there's actually, there's high signal in the posterior arm is that, that that should be dark in there.

Nick:

Rather than the bright there. And that's the, that's the oedema within the posterior eminence. And then how quickly does that oedema appear after the injury? Within minutes. Cause this sequence immediately afterwards would have shown that up straight away. Yeah. I mean by the time literally if you'd got something into the MRI scan, having been injured, got to hospital, got an MRI scan within an hour or two, then because everything would have bled. So the stir sequence or being bright as anything very, very almost immediately. So, when you look on the, on the plane x-rays now you see here, here's a wedge compression fracture. The back of the vertebrae is tall and the front is a bit shorter. And there's a wedge and then a young guy and there's another wedge. You shouldn't have that. And down here you've got normal vertebrae and up there with vertebrate.

Nick:

But when you look at the posterior elements, what you also see is the inter-spinous gap here and here and here, that there is a variation. Cause there it is. There you go. Here it's 23.9 millimetres. They're 26.5 and here 25 now it should get bigger as you go down. It shouldn't have a bigger gap here on the one below. So, so that's showing you that the gapping of the spinous processes is it opening up better? And that's, that's a reflection of that soft tissue injury. So that so anyway, this, this, this is a, a young guy. The question then is what do we do about him? Because if I can treat them in a brace and if it does heal up, he'll be okay. But it's a manual worker. He's not working for six months. If you need some operation, that's fine.

Nick:

You still weren't working for six months, so, so whichever way, he's not going to get back to work until, till the autumn, which is a pretty important aspect of of, you know, of his livelihood and his family's life. So, yeah, so that's important. So that was it. It was an interesting case that they have a history of a guy who has been in a car 6ft 4, squashed badly and then sent home. What did you say his job was? When you say he's a, your worker? Yeah, he works on a farm. Right. Okay. Yeah. So whatever, whatever happens for me, but he's not able to do that anyway. It's not going to meet, you can't, you can't jump on a combine and then jump off a combine in three months. I mean, he's, he's desperate to get back to work and he thinks I'm a monster for telling me he can't. But Hey, here we are. His wife is at least sensible. Right.

Nick:

Well, good for her, for sending you on to you, I guess. Yeah. So it's a, yeah. Says, but it's one of those situations where it all comes down to the history. Again, you have the thought that the, the paramedics would have said to the, the, the people look after him. This guy has been in a car rolled and it's been flattened like an Eccles cake. And you really need to look at thoracolumbar spine because this is the sort of injury you get and it, it, it again comes down to know where, where are we going with modern medicine if we're not actually listening to what patients say, even in emergency situation, only relying upon special tests. And then any relying upon the interpretation of a single individual reminds me of your forecasting, you know, cave it for a million periods, doesn't it relied on a single individual. We've crashed the economy. Hey that's a different story.

Steven:

It is kind of strange. I do quite a lot of work with a paramedic or a former paramedic, particularly with regards to teaching first aid to osteopaths, chiropractors and so on. And you know, one of the parts of that is looking at the mechanism of an injury. And in all of these ones that you've described, the first thing that would occur to somebody surely is there would be a fracture and you, you would think that the investigation will be carried out. I'd like to think that I or my colleagues would be brave enough to say to whoever had dealt with this person, first of all, can you look at him again because we think you're wrong. I suspect that will be a very challenging conversations I have.

Nick:

Well, I think actually in the current situation where, where doctors don't like to be challenged at all, then you're absolutely right. I'm not sure through my career has changed very much. And I mean, I would hope it has. And in some respects, the democratization of medicine is what we've all been hoping for. The internet helps because you took away the ability of doctors just to monopolize medicine because they knew what the words meant and the rest of the population didn't. So that was their power. And as, as other healthcare professionals have, no, if you like learn the language, learn the techniques learned, the science that has democratized medicine. And I've seen that through many of the societies that I've been privileged to be on the executive boards because society back payments search for instance you know, I mean, we have scientists, physiotherapists, osteopaths at the very highest level, the PhD, et cetera, Perry, pursue with the doctors. There's no difference when it comes to that. Unfortunately that doesn't translate into today's second medicine. And you know, there's a whole bunch of doctors still think that, somehow they are better than everywhere else. I wonder if they is wrong, but you got to try and persuade them that,

Steven:

Robbins asked if you could just refresh our memory on what you call that injury. So the spine inflection distraction, what used

Nick:

To be called the chance fracture. So or the Holsworth slice, so essentially described Holsworth was a, he was a an orthopaedic surgeon in Midlands, so dealt with a lot of I think it was at Derby and dealt with a lot of miners who had injuries. So in mind. So when, when, when the, the roof of the mine fell in the pit box came down, then that'd be bent forward. Do you have that flexion and distraction? So that was the whole Holdsworth? Slice and then, then I can't remember what by the chance was a person or whether it was a description of an event. But anyway it was, it was then called a chance fracture and that was the classic lap seatbelt, whether the, the abdomen is fixed by the lap seatbelt. And then the car suddenly decelerates , the whole of the top half the body rips forward like that. And then all their spine from the back is torn apart. And, and frequently these are quite severe injuries without any neurological damage because there's nothing pushing into the spinal cord. It's, it's, it's it is distraction. Now we just call it a flexion distraction, injury and the, the degree of instability is defined by whether they have purely ligamentous disruption at the back or whether there actually is bony disruption. If there's any disruption, the bone will heal this ligamentous disruption, it's less likely to heal.

Steven:

Nick, that has taken us take it this almost exactly the time. Thank you very much. It's always a treat to have you on the show and it's amazing how much you store in your head, and we're very grateful for the fact that you're prepared to share it with all of us.

Nick:

Well, you're very welcome. It's been great fun. Thank you.

Steven:

And hopefully, I mean, I'd like to come back to you again about your bone scanning. Maybe we can get to do that with a camera on you as well.

Nick:

Yeah,

Steven:

Yeah. I'm sure there'll be plenty of requests to get you back on the show in the

Nick:

Your distant future. That'd be very welcome. Thank you.