Cervical Scans Pt2 - Ref 128RSDC - Draft Transcript

with Rob Shanks and Darren Chandler

26th November 2020

TRANSCRIPT

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Steven Bruce
Today we're going to be doing part two of something we started several weeks ago, which is looking at cervical MRIs and cycle scans. We're doing that with the boys with Rob Shanks and Darren Chandler. Rob, great to have you with us. And let's have the boys back in town.

Rob Shanks
Hey, good to be here. Thank you so much.

Steven Bruce
Well, it's been a great day for you as you arrive in your new clinic today to find someone's kick the door in?

Rob Shanks
Yes, unfortunately, yeah, had a bigger food mark in the front my front door.

Steven Bruce
I'm not gonna make any comments about the merits of setting up a clinic in Essex, that would be definitely unplayable. But I'm sorry to hear that. But what are you going to talk to us about today?

Rob Shanks
So absolutely, yeah, we're gonna we're gonna cover kind of start where we left off. Really, there's a few things we didn't cover in the last lecture, we're concentrating on cervical MRIs in particular, you think I think cervical, cervical is a slightly harder than the numbers. There's a little bit more kind of finicky anatomy that goes on. And there's a few nuances that we need to go through and make make the viewers aware of when especially when it comes to upper cervical spine issues and what you know what to expect from those scans.

Steven Bruce
Okay, and you got a couple of case histories to take us through that.

Rob Shanks
Yeah, we got some really, we got a couple of really, really juicy ones. We've actually got three cases we've prepared, but it's the it's that there's two of them, which are really, really good. I mean, Darren's got fantastic. wants to go through it again. So we must allow him to get into if I if I'm if I'm running over, please interrupt me and make make sure my

Steven Bruce
Sure, Darren Sure. Darren will do that.

Rob Shanks
Yeah, yeah. him off.

Steven Bruce
By So Rob, do you want to crack on yet? I'll,

Rob Shanks
I'll share the screen. Here we go. So bear with me a second. All? Right, let's start here. So here we go. So it's part two, as we just said, of the MRIs, we're gonna do a couple of case histories. And let's before we do just go through a few, a few little pointers. So here we have an image of a cervical spine, and you occasionally get this and you think yourself baldness, what was that all about what's going on there. And this is this is simply where, particularly on the left, you can see this, that the patient has just been moving in the scanner. So this is what we call movement artifact. And you'll occasionally see this on the MRI reports, you know, that it may may make mention of this, this, this, you know, this term movement artifact. And that's simply what it is. It's where the patient's been, you know, rolling around presuming in a certain amount of pain. And the image quality is therefore that much less, and it's harder to interpret what's going on.

Steven Bruce
There's nothing in there we could misinterpret, then it's just it's fuzzy on the left hand

Rob Shanks
image that really would be hard to really put your finger on anything, because it is just so difficult to interpret, obviously, that the right hand image is is clearer. But it's, you know, it's still not perfect. So yeah, just Just be aware, you know, this, that does happen sometimes. And be aware that if you have a patient who really is in agony, and if they are not going to be able to keep still at all, in the scanner, is going to compromise your MRI quality information you can get from the MRI.

Steven Bruce
And with a patient just like that Not long ago, the one I wanted to discuss with you and back then you had a whole body MRI, which meant he was in the scanner for something like, I don't know, nearly an hour, and he can't extend his neck. And by the time you'd go halfway through this, the poor guy was in real agony.

Rob Shanks
Yeah, yeah, absolutely. You know, I mean that the radiographers do do their best, and they, you know, they try and explain to the patient, right, you know, can we really get one minute to go please try and keep still, but, you know, sometimes it is, is is difficult for the patients. So, you know, it's worth it's worth bearing in mind. Okay, so we're going to move on to this one. Now, this is this is something you would have heard us talking about in the past lots of times, and sto in particular. So the stereo image is

the is this fat suppression image. And coronal as well, coronal view, basically, you're looking, you know, from front to back back to front. And it's well worth asking for these views. We've mentioned it when we talked about lumbar spine, but the same applies for the cervical spine. And often they won't do these unless you ask for them. But if you ask them, they usually will do them and at no extra cost. And it hardly takes them much, much extra time. And you get again, additional information. So you can see on here, you can clearly see the patient, his side bending to one side. And again, that has a bearing with regards to and you can even see some slight, you know, so they left to right, maybe maybe shift, you know, kind of in the middle in this one here. And again, it's just useful to interpret Well, you might have, for example, slightly less degeneration on the side here. But if that patient is for whatever reason, they've got Mr. scoliosis and encroaching on that side. That might be why they're symptomatic here and not symptomatic here.

Steven Bruce
So again, just curiosity is probably an obvious answer. When we look at a transverse image, we're always looking up the body. With these is the left on this image the left

Rob Shanks
on the right. Yes,

Rob Shanks
So you always have to remember, absolutely. So when you go when you go for an axial image, it's always reversed. Yeah, so you're always, the left side of your screen, as you say, is the right side of the patient, and the right side is the left side. So because you're looking from the bottom up, and the same, you know, the same on, on these sort of images as well as always back to front, and then sagittal stare as well, again, that's, that's another useful it's very similar, you know, they'll do these two together, if you ask for a coronal Stern, a sagittal, stir, or even if even if you just offer a coronal stir, they usually include a sagittal stare as well. And again, really useful sequence to have because of that fat suppression. And that therefore means you're going to show the inflammation up, if it's present, much more accurately, particularly if it's on structures where, you know, there's a there's a certain potential for a mixture of fat and water to occur. So what we can see here again, is we know the left, the left hand image is a T two. And we know that because we're going to look at the subcutaneous fat is bright, so that we know the fat is showing up, right, we also can see the cerebral spinal fluid, and that's also bright. So the entity tells us we're dealing with a T two. And then on the right hand image, it's essentially the same thing for T two image, but it's had the fat suppressed, so then you know that the fat content down to the skin has become darker, it's been suppressed. But what it will also show us is that if there was anything around here that was inflamed, so you know, the inter spines, ligaments area, the ligament, Nuki, etc, if that was showing up, right, particularly right here, we might not see it here, because you can see there's a certain amount of a certain amount of fat content in those ligaments anyway. And anything Brighton stir around those areas would potentially be significant. So again, a really, really useful thing to have done. And if you don't ask for it, you don't always get these images, and therefore you you miss out on that information.

Okay, so we're going to move on one other little snippet, then to remember with cervical spine is that depends on the center. But more often than not, and particularly with, you know, the cheapest scans that around if you ask for cervical scan, you are not going to get or you'll get some sagittal images, but you won't really get any axials through the upper cervical, sort of cranial junction. So C one C naught C one, so you're not going to get those actual images. And again, you won't therefore have a report that includes any real comment on those on those joints. So for example, you have a patient who's got, you know, an arthritic oxy, oxy, flatlands will join, you won't know about it, unless you have those areas, specifically scanned, and often that will be counted as a second scan or a second, second area. So two part scan, you know, if you're going to go for above C two, and you're going to go for the survival scan, a lot of centers will count as a two part scan. So you need to be aware of that. And sometimes you may have to request that, you know,

Steven Bruce
is there a reason why they missed the top off? Um,

Rob Shanks
I think it's, well, it's a very good question. And we we, you know, often frustrated by that, and we do odd sometimes do our best to try and say, can you please include that, I think the reality is, it just takes time, you know, it's another set of joints for them to do, it takes time in the scanner, and therefore they're going to have to allocate an extra slot for it. It all comes down to time. So with some scanners will will allow some scanning services will allow a 30 minute slot for a patient. And if they allow a 30 minute slot for patient, then more often they're going to include they will they will be amenable to including these areas, if you like in the one part scan, but then usually be charging a bit more for that 30 minutes. So, you know, Vista and inhealth will usually they're usually 20 minutes slots in the scanners. So you asked for survival, you're only going to go see two to see seven. And more often than not, you want to see the acceptor Atlantic jumps, you have to ask for that as a separate area. Okay, so we move on to our first case study. So this is a chap called Jeremy and Jeremy came to see me a month or so ago now. And he actually is one of these kind of lockdown patients he's been suffering ever since March. And he'd been having left Harry scapular pain, bit of arm pain. And he'd seen I think, I don't think it's any specialist at that point. But it's certainly been to a couple of different manual therapists. And initially, you know, the ideas was what it was just kind of scaffold, thoracic mechanics and all that sort of stuff. And he was, you know, kind of really struggling, let's, let's say, some days better than others, but when I saw him he was at an absolute agony one of these guys So just you know, just so you could just see how much pain he was in, he wasn't sleeping very well. And I thought, well, we've got to get him scanned, it was very obvious to me that it was cervicogenic in nature, and it would seem like a nerve root type of pain. Although he didn't have you had some kind of slight loss of sensation and a bit of tingling in his fingers. He we the main pain he just was complaining of was actually around his shoulder blade, the scapula. And I think that actually is sometimes something where we can sometimes get lost, we can sometimes sometimes forget, well, this can also be psychogenic, when they complain that we will automatically go to think, well, it's Paris, capilla, there's gonna be something along, you know, around

his rib joint, it's gonna be something that's gonna be a faster internet, or it's going to be some sort of rhomboid strain. And yes, it can be but with this guy, any slight movement of his neck, and he's like, tilted his neck, and he'd be in agony, you know, down the arm kind of a little bit into the triceps area as well. So we scanned him. And this is, this is what we got back and actually wasn't quite as bad as I was expecting, I was expecting to see, you know, a really, really bad nerve root impingement. But nevertheless, there was still some encroachment. And we can see here, for example, it actually on both sides of the C six, seven, there's some stenosis on the exiting nerve roots. Now, it's interesting actually, that you would look at this, you'd actually think that he's left so his right side is actually worse, but he didn't have any symptoms on the right. And all his symptoms were were on the left. But I think that comes back to this this type of thing. Like I said, before, you know, he also had a certain amount of curvature and his neck and I think that added to the degeneration was was what was causing his pain.

Steven Bruce
So the coronal stone was quite the coronal image was quite a useful thing for us now on the anatomy, and yet, most people are familiar with this, the big white blob in your slide, that's spinal cord, the black bit is the disc or vertebral body is that much though,

Rob Shanks
so? Well, the spinal the spinal cord is actually this part here, it's it's looking at the actual image, also on the actual image, right, so on the image here, yep, so in the middle, you have the cervical cord correctly, and round the outside, you see, there's almost like a, like a little bit of a lot of quite a lot of white, yes, that's the cerebrospinal fluid around the cervical cord. And that's very important. So you want to make sure there is that ring of CSF if you like, and there's there's no occlusion and there's no contact with the spinal cord, or no significant contact spinal cord. So that's, that's, you know, that would be our myelopathy, for example. So that's one of the important things that we're looking for. And obviously, that patient was to have bilateral arm pain, particularly head to head if they had leg pain as well as the arm pain. That's something that we're really, really keen to know about. The meat side if they're getting electric shock type feelings in both in all limbs, upper limbs and lower limbs in particular. And the other little tip, I think it's very important as well, when we're examining these patients, even if they're complaining of just neck pain, it's always very important to know to examine neurologically the lower extremities as well looking for those upper motor nerve signs. You know, those, those outgoing planters, any tonus and clonus, in the lower limb, because you can sometimes get those subtle signs of the cord being being compromised. So yeah, absolutely. So that's the spinal canal cord area. And then either side, here, we've got the facet joints, as you rightly pointed out, this, this black blob, if you like is is the desk. And that's the essential anatomy we're looking for. But obviously, we've got all the the outer spinal structures around there as well, and the muscles and the skin and all that stuff. But the crucial thing for any ridiculous type pain is this, these these exit Femina here so these should be clear, I mean, they should be this if we've got a pretty should have brought up a normal but normally you'd see good daylight coming out of here, you know, and a nice open exit parameter. And you're getting that impression with here that you can just see this and multiple and bubbling coming in here. Now the

interesting thing with with with Jeremy is I initially got stumped by this little then you can see just at the corner here where my cursor is, it looks like a little little spike that's coming out. And and you can get misled by that you think yourself goodness me that's a that's a dirty, great osteophytes sticking into that foramen. And both Dyer and myself have been called out on occasion thinking that was the case. Now what actually is happening with this with in this particular example and this is highlighted here. That's what I'm looking at there. In this particular case, it wasn't that this is actually where he's not lying quite in the in the scanner and you're actually seeing a bit of the if on the bottom of the lower aspect of the exit for me coming into the pedicle you're seeing a bit of that coming to view before the other side so you get occasionally these things you know you think are big osteophyte actually, it's nothing it's just it's benign. But he still did have from some frameless gnosis this guy and I ended Because he was in such pain, and he wasn't sleeping, and you know, you really felt sorry for me, but he really does need some quick pain relief. And I recommend that he went off for a nerve root injection, which he did. And it does sometimes take a few weeks for it to kick in, you know, initially, they'll get some relief from the local anesthetic. But a few weeks down the line, actually treating three times and he didn't really show much improvement. And that's why I sent it to the nerve root. Now, he's I think he's two or three weeks post post injection now, and I caught up with him last night. And he's actually thing, you know, fair amount better now. So he's able to sleep better, and he's getting him on the main hopefully,

Steven Bruce
Rob, I've been asked if you could switch to presentation mode. The images are a little bit smaller. If you put it on presentation, it will fill the screen.

Rob Shanks
Absolutely. Yeah, let's do that. How's that?

Steven Bruce
Yeah. And since I got your attention, I got some other questions as well, if I may. Yeah. Phil's going back to that two parts scan. He said he asked what the cost of the two part scan is.

Rob Shanks
Okay. So again, depends on the sensor. And but normally, you'll get a discount for the two part versus the one part. So you know, it does vary, and you won't, they won't be paying double. Okay, something like, you know, like 75% of the second part.

Steven Bruce
And related to that, somebody called bamboo is saying, if they actually specify they want to see see one, will that be sufficient? Will that be enough? Will they just Well, I shifted segment.

Rob Shanks
So if you just wanted to see see one?

Steven Bruce
I sorry? Well, if he highlighted that the problem he expected to find was let's see one. Yeah, they just move their scan upwards a little bit and do a single scan.

Rob Shanks
Right? It's a very good question. And, and, you know, I know, you're saying, you know, you're saying to yourself, Well, what don't scan for C Two, two, C seven, just going from C one to C five or something like that, in my experience, it often doesn't happen, unfortunately. And you'll you'll never live in no man's land when he asked that they that they set protocols with with these things, and it tends to be you know, cervical spine protocol. Or, you know, c one, two, C two, two protocol. So, like appeal junction protocol. So, yeah, I think to be sure, and to say, if you really want to speak to the scanning center, rather than just leaving it to the chance, you bring them up and have that conversation, you might get lucky. But be aware that if you don't have the conversation, there's a big risk, you might get the the wrong area that being scanned, and therefore having wasted some time and money for the patient. Right, let me move on to this one car. So this this, this was a great one. Now, this is a guy I really felt sorry for. So he came to see me again just a few weeks ago, and he's a younger guy, not enough guy, 30 years old policeman. And he's been suffering for three years. Very similar, kind of on the, on the surface to the previous patient. I mentioned, Jeremy and he's getting left sided, again, parry scapular pain, but when and that's what he's really complaining of, you know, levator SCAP and trapezius. And it's really, really bad. And it's really getting down. But when he when he programmed a little bit more, and he really, so come up with anything else, any other stuff. And he does complain of a diffused kind of pins, needles, slight numbness around the board of the scapula. And the sad thing about him is he hits he's seen so many people over the last few years, he's thinking Actually, I've come to his summary here. So he had a scan, way back in 2017. And he did show up some c three, four stenosis bilaterally, which we can see we can see here. And we can see there's some sort of, you know, disc bulge at that level. So 234. So we instantly know something's not quite right with his spine. And he's interesting, got a slight little thesis as well as a four. If you look at look at the way that's lining up to find you can see there's a shift. And that wasn't mentioned on the report. But again, just something we can observe. Now, he had his shoulders checked out, that was fine. No real cuff tears, nothing like that. He reported to me that he'd had an EMG study done. And that was all clear. So we thought that he think well, maybe this is just coming to dental and maybe there's no nerve root compression and Okay, perhaps that's why he's been told some of the things he's been told, which is there was no surgical target, and he's just got to live with it. And he's got to decide, you know, perhaps now who we had most recently been referred for trigger point injections with a pain clinic. But he and they'd had absolutely no effect. He told me absolutely zero fat. pregabalin had had been of some use. But this guy when I say he was at the end of his tether, I mean, he literally wasn't anybody said he, he broke down in tears in front of me and he said, Look, I've lost relationships over this. I'm on the verge of losing my job. He's actually a mounted policeman. So he's in his passion, his horses. Someone else declares harm. Sure. And you know, he was at the stage where he he just couldn't do the things he loved doing. And, you know, the future wasn't looking very rosy for him. So I

went through his case today, I actually got all these notes asked for his EMG studies as well. And the V The, the big thing that stood out for me for the EMG studies, they only tested c five and below. So if I hadn't done any EMG studies on c four, which is the one we're really interested in, so C four is exiting between C, C, three and four. And my theory was what I thought, strongly strong case that you had to see forward if and when you asked him, you know, to extend his neck, inside the neck, neck, that reproduce all the symptoms, and he literally saw I'm getting pins and needles now on the top of my arm, I took my shoulder blade, and that pain has increased immensely. So then you think yourself, well, goodness, you know, the surgeons told him but we can't operate, there's nothing to operate on. It actually seemed to neurosurgeons so he that he'd seen in NHS one who then paid privately to see another one. And they both Molly's told him saying the same thing. So he was then seeing physical therapists and being told he had Thoracic Outlet Syndrome and this and that, but again, nothing was helping. So I can I asked for the images, the the the the MRI images, and that's the first one that came across, I thought Yep, okay, well, we can clearly see there's a disc protrusion there. But then this was actually on the this is actually a view Harvey's slightly slightly parasagittal. So it's just slightly off to the midline. And this is this is towards the right side, but where he was on the left side, and just get to

Rob Shanks

include included in this. Goodness, the slides gone, okay. So on the other side we actually has is a massive osteophytes. So we don't just see the desk here, but we see a huge bony lip, on his left side. And what that is, is is an austenitic bar. And so this is no longer on his symptomatic size, no longer now, this material is compressing the nerve, it's actually bony encroachment. And when I say it was big, it was really big. And and to think why he's not being offered surgery baffled me. And I ended up saying to him go home, I'm going to show you this case to it to a surgeon, I noticed it was actually Bob strategy who you've had in previously. And and Bob was in absolutely no doubt. He said, Listen, this guy has been just totally mismanaged. And for him not for him to have surgery ruled out. And for him to have been suffering for three years. And, you know, again, he's in absolute agony, this guy day and night. And Bob was aghast at that you hadn't actually been offered the surgery, or at least had had surgery rolled out. So again, similarly, we've sent him off for nerve root injection. He actually was pain free for 36 hours following his nerve root injection of 40, the pain started to come back. And we're waiting to see whether or not the steroid medication in that nerve root injection will will kick in over the next couple of weeks. Now, it may do it may not. It may only give him temporarily even if it does, I strongly suspect he's going to have to go through and have surgery and he's either going to have to have a cervical disc replacement, or an anterior cervical disc ectomy infusion. Bob's suggested he'll probably try and offer him a cervical disc replacement because of his age and to try and you know, avoid the risk of Jason level disease. But again, unless he if he had come in, and as we've gone through his scan, unless we've kind of realized that actually, he's kind of being a little bit mismanaged here. And and second question is MRI scan and second question, the EMG studies, the poor guy would we're getting we're focusing on in no man's land, and I'm not getting anywhere very fast. So, you know, my message is never be afraid to challenge what the patients have been told before. And, you know, get the MRI scans out. And if something doesn't look right to you, I'm really sorry, I haven't included that scan that other

slide when Darren's talking, I'll try and find it for you because it's worth looking at. Because it's really obvious when we see this this osteophyte

Steven Bruce
is it part of the deck that I've got recently? Yeah. As a handout, so that'll be quite useful.

Rob Shanks
Yeah, double double check on that.

Steven Bruce
Can I just go back to that slide, Rob, before we move on? Yep. This is not relating specifically to call but obviously, it's c three, four, you can see what looks like a disc bulge there's a fairly big dent in the spinal cord there. I seem to recall you saying in the past that is perfectly possible for something that looks as severe as that to be fairly asymptomatic. And you're you're obviously correlating this with symptoms which is different Yeah.

Rob Shanks
So so so if I'd had the other so this is actually on his non symptomatic side this is what this is what I was trying to say to show you so this is this is not this is just slice just to the right of midline. So this This isn't like you say where he's where he's having a symptom. Now this this could be symptomatic, but it's not necessarily going to be symmetric. But yeah, when you when you see the one that's just to the left of the scan letter that left at midline, you know, you can see what the difference is and they talk about on the On the report, they talk about, you know, osteolytic bar. And that's philosophy politics. And it is made up of, you know, frameless nurses but also the uncomfortable joints as well. So they can get arthritic and they're really gnarly and they're enlarged. And, and the reason we then ask yourself the question, Well, why, you know, why is this guy's thirsty? Got this level that that level of degeneration is Nick. And nobody was ever you know, no, everyone kept saying, oh, have you had any trauma? Have you had a whiplash? I'd be you know, had a fall on your head if you had no actual bloaty head even he had no No, no, nothing like that at all. But in the end, we came to the conclusion. I went went through his history now what do you do as a teenager? What sort of sports were you into any any rugby? No, no, nothing like that. But what he was was absolutely obsessive over golf. And I said, Well, I'm sure golf, he had no bank robberies, I was really obsessive that he said, like, literally, I will be out for 12 hours a day, six days a week, 36 holes a day. And and and we think probably that's what has led to a lot of this, that he's just he's just really worn out his neck unfortunately. And maybe coupled with horse riding or who knows, but it is what it is. And but hopefully he's on that he's now got at least a path and he's got a he's actually feeling a lot more hopeful. He's got some options to try.

Steven Bruce
Quick one, before we switch over to Darren Pietro has asked what the prognosis is for Jeremy.

Rob Shanks
And progresses to Jeremy's good. And it says go back to his slides. So yeah, it's actually quite good. So if you look at look at his kind of destiny, portable, better better state than than car. And as I say, the the scan wasn't as bad as I was anticipating. And I actually think with with Jeremy, what he was mainly suffering was really inflamed. nerve roots were declining. And that's probably why we started to find with him that he had the injection we sent him for is actually starting to work and starting to pay off. And as I was corresponding with him last night over text, he's, you know, for the first time actually saying to me in in a couple of months, he's now starting to feel a bit better. So I think with him, he will avoid surgery, I think he probably come in in a week or two, once we've got the full knowledge of how it how those nerve root injections have helped him a lot. And then once he's got that, hopefully that result, then I've got to do a bit more with him. He's one of these guys literally even just touch him or I can hardly touch him because he was just acting an absolute agony. So but I'm hopeful within

Steven Bruce
a quick run on this as well. I think this bee has asked how you differentiated the disk from yours to fitting bar? Because for those of us who are novices that this is quite difficult to

Rob Shanks
Yeah, I'm gonna I'm gonna find that slide, Steven, because when you see the slides, it's obvious. Yeah,

Steven Bruce
I'll find it. Okay, shall we move on to Darren, and while you do that, you might have to unshare your screen so we can move on. Thank you. Darren is still with us.

Darren Chandler
I Steven, I'm here.

Steven Bruce
Excellent. What have you got to share?

Darren Chandler
Well, I've got a nice lumbar spine patient. This is an absolute classic. And one of the reasons why I think you know, all therapists should be looking at scans because this is this is at the top of the pile this patient of I Am I going to share my screen now. Steven?

Steven Bruce
Yeah, if you've got the slides up there, that will be really helpful. Yeah, we're doing it this way. Because it's much easier for you to highlight things with your pointer than for me to try and do it.

Darren Chandler
Okay,

Steven Bruce
so let's go to presentation mode. So we get it full screen that will be very useful.

Darren Chandler
So can you all see that?

Steven Bruce
Yeah, that's lovely.

Darren Chandler
Okay, I have got you along the top. I don't know if that's. That's better. Okay, we all we can all see that. Yep. Brilliant. Okay, so we have a 23 year old male, who's presenting with two year history of central to left lower back pain. And this all started around about January 2018. And as per usual, they went off and this particular chaps or four independent private therapist, to osteopaths, there was a into physios. And they'd been, you know, given the sort of diagnosis of discord join sacred act join on one sort of come up with the nonspecific lower back pain based on what the findings were on the scan. So it's now December 2018. And he presents to his GP in absolute agony, and the GP decides to send off for an MRI scan. So the MRI scan pretty much comes back as what we're about to see. And the report is pretty much unremarkable. There's no evidence of any problems whatsoever. So this is what we're about to look at now. So on the screen, we have three sagittal scans, and on the far left of your screen, this would be a stir sequence. In the middle, we haven't seen one fat suppressed, and on the far right, we have a T two. And we know the middle one is a fat suppressed it's a it's not fat suppressor. It's a T one which then highlights fat because As we can see, the CSF and the spinal cord are quite dark compared to the other two. But what I want everybody to focus on if you look at the bottom left hand side here around the L, five vertebra, you can see that there is some very, very small high signal present within the L five vertebral body. If you look on the T one scan is pretty much unremarkable, we can't really see anything. And there's a slight little bit here on the T two. But on the T on the first sequence, we can see it's apparent. And if we go to the next scan over to here, we can start to see that on the stur sequence, the L five bodies now become even more hyperintense. So there's more higher signal fluids brighter. But on the C one, we can now start to see there's a darker image appearing on that vertebral body, and it's bright on T two. So remember, because we have a stir sequence present, we know that this has to be a form of fluid sitting within the bone itself. And that fluid generally represents edema, swelling. Now, when a young person, teenage, early 20s present with this type of picture, we would be thinking straight away that there's been some trauma to the bond. So it could be a four, or we could be looking at what's known as an undisplaced fracture there, if I take you to the next image, you'll see here that the highest signal on that l five starts to track into the pedicle and into the transverse process. Okay, so this sort of black little ring of bone here, that's the pedicle. And it's going into the TP. And you can see again, if you look at the

T one in the middle, it's pretty normal. It's a normal coloration, there's no white signal. So we know there's no fat inside it. But there is white present on the T to

Steven Bruce
this image I gather, we're just moving slightly further away from the midline with this image.

Darren Chandler
Exactly. So this isn't what we would classify as a foraminal, or a pedicle view, because we can see the foramina just present here, here. And we've got the nice l five phenomena just here. But we can also see the pedicle as well. And if you look at the superior employees of this one, there is also some high signal in that as well. So remember, this was taken in 2018. And the chapters got quite bad lower back pain. Now, I know Rob touched on it briefly briefly a minute ago on the survivals. But what I wanted to show you and this is what's so important is that the orange line on those two sagittal views represent the slice that we're looking at, on an axial view. So in the middle here, it's not a great picture as I took this off in NHS portal, but you can clearly see here are the two facet joints, okay, and we have the erector spinae here, there's a little bit of CSF and the spinal canal. And then you've got the big black disc, the annular disc around here and the been the employee. Now, just look at where that line is. Okay, that line is sitting superior to the L five pedicle. And you can clearly see it also on the T two. But watch what happens when we go to the next slice. Okay, this is the next slice, you can see that the orange line has dropped below the pedicle, which is quite a large space, we would like to see half a mil a millimeter slicing of this, and we haven't it's massively jumped almost a quarter of an inch, so we cannot see the pedicle. So this would be the way that the radiographer has taken this particular scan. That said if you look at the axial view in the middle here, you can see that the inferior body of L five has a left sided so remember as we look at the screen, it's this part is the patient's left, you can see if this is the midline on the left hand side there is some highest signal and you can just about see the inferior pedicle and the transverse process and there is also high signal in that. So as I say, the the alignment of the scan isn't perfect. So you can forgive the radiographer on a radiologist for maybe not picking the axial image up but we can still see as complete novices here that there is high signal in that bond. But we can massively see high signal on the T two and Mr. sequences, so we know something's wrong. But as I say the report came back as this this I took this literally from the report and the

Darren Chandler
But no fracture can be seen. So if you get this finding, as I say, it generally indicates that there could be a non displaced fracture. So the next test to do for this person would be to send them for a CT scan, okay. And they were sent for a CT scan in February 2020. So we're about two months on from the MRI. And here are the findings. So there's no focal lesion in the body, especially within the posterior elements. So we're looking at the transverse processes, the pedicle, and the pars. And the conclusion is that it doesn't demonstrate that there is any lesion within the L five body and that it was a completely normal l five vertebral body findings basically. And I find this very hard to sort of stomach because I know us humans all make errors. But this particular radiologist would have had almost an arrow

pointing to the old five, because the MRI has shown us that there is high signal. But they've looked and as far as they're concerned, there's nothing wrong. So I'm about to show you now that in 2020, what six weeks ago, so we've been looking at beginning of October, middle of October, this chap came to me absolutely debilitating pain. And he just said I just can't continue and he's been in bed for about eight weeks. So I asked him to bring his scans in because we spoke on the phone. And here is that CT scan that he had in February 2020. So if you all have a little look on the left hand side, we've got the L five vertebra. Now, here for the viewers that don't know this little area here of darkness, this would be classed as the left lateral furama. So in the middle of this, we all know that the L five nerve will be exiting, and that's that black dot that you see just there. But what we're interested in is the pedicle. Okay, so in the pedicle, it's a normal coloration. And you can see that as you go into the laminar and the pores into acicularis, it looks completely normal. But now focus your eyes on to the right hand side of the screen, you can clearly see that the lateral foramina when you compare the left side, compared to the right side, you can see that the superior is one facet joint just there is now if you're like knocked off, and we have this kind of shadowing erosion type appearance into the lamina and the pores of the left l five. But if you look in the L five body, can you also see that there is a slightly higher signal, it looks of a lighter gray or white color in comparison to the one on the right side. So what we're looking at here is some kind of defects within the bone, there's an abnormality. And if I take you on to the axial view, you can clearly see here, this patient has a hole, okay, inside the lamina. And this whole tracks into the pedicle into the pores. And you can clearly see into the TP to transverse process. And if you go over to the right hand side, you can see that there's discoloration as well within the body. And that extends down right the way through. And you can see the facet on this corner also has a change in signal, the right side facet, look how nice that looks, the cortex here has completely changed. So what we're currently looking at is we're looking at an osteoid osteoma. So we're looking at a benign tumor that was found to be picked up back in January of this year. And of course, one of the characteristics of an osteoid osteoma is that you get quite bad night pain. And around about June July of this year, he started to present with quite, you know, intense knife pain. So I kind of sent the scan off back to a consultant, one of the chaps that Robert and I use. And don't forget, this is the same CT scan that the original radiologists was looking at. And you can clearly see that and also the word osteoma is present in the anterior inferior margin on the left lamina of the oh five vertebra and it's about 1.2 centimeters size front to back. So you know it's it's just incredible that this was never picked up and I kind of feel for the chap who's 23 because he has been he's been bedridden. And for some of your viewers today, I just want to show you what classes of bedridden patients can you see on this picture? Just Here, can you see in the subcutaneous fat just here, he has high signal. So within his fat, he has water. And the reason this waters there is because he's been bedridden for at least four to six weeks. And this would be a clear indication that he has fluid signs of poor within the subcutaneous fat. So this is generally a good indication before you even speak to the patient, that they've been in a supine position for some period of time. And in this particular chapter was due to his pain. So you know, thankfully, this chair has been referred to the Stan more tumor unit, and he has undergone surgery. And the reason surgery has had to take place with this particular individual is that it's on the inside of the lamina. So it's literally intracortical. And it's internal. Normally, within osteoid osteoma, you would go through an ablation technique where they would burn the blood vessels

to stop the excessive growth. But because it's on the inside of the lamina, they'd have to surgically go in and then cut this away to be able to do the ablation. So it's been a little bit more of a procedure than what you know, you would have hoped but at least we've managed to, you know, get him into the right road. And thankfully, he's being looked after as we speak. So, yeah, case for unbelievable, it was missed. Indeed, Darren, if

Steven Bruce
you bring that slide up once again, I've got a question from Martin, who says that on one of the all five images, it looks as if there's a fracture, and I wonder if we go to the one that you just had up the final slide there. If we look at the right hand image, there's a line running through there and the other side, sort of those lines.

Darren Chandler
So what we're looking at there is is that this bone just here, this is the inferior facet joint of L five. And this is the right inferior facet joint of L five. And what you're looking at here is this is the s one as it's coming up underneath. It's just the way the facet joints are orientation, because we're still at the level of L five here. So as you scroll down this facet joint on this side, and this side will start to come more around in as coronal plane.

Steven Bruce
So yeah, you may have I may have got the wrong image there. I'm not sure it's difficult to know, promoting this question. But I wonder if we've got time to rush back over to rob if he's got that image that he was going to show us before we run out of time?

Darren Chandler
Yeah, he got it wrong.

Rob Shanks
Oh, yeah, that was muted. Yes, I

Darren Chandler
got it. Got it all ready for you. So

Steven Bruce
we got about 90 seconds left, I think.

Rob Shanks
Okay, here we go. Right. So let's start the one we had before. So let's try to do the slideshow as well. So this is the this is the non symptomatic side. And you say you say this material. If we then go to the one that I'm really interested in, it's here they can see you see what i'm saying about here with the osteo fit

lipping? Yes. You see now it's no longer disc, really, it's just his bone. That is never going to change, you know, in a month of Sundays. And that's where his symptoms are coming from, I'm sure. And what soon as I saw that, you know, I just thought, Oh, this is this is this is got to be a surgical case. If we can just confirm that that is the level of his pain. And this is this is, you know, I think the fact that he had 36 hours of relief with the nerve rejection is indicative of that.

Steven Bruce
Well, he must be very grateful to you. Yeah, I

Rob Shanks
think he is. Yeah, thanks. Yeah.

Steven Bruce
Brilliant. Look, I'm sorry, we've run out of time. And I'm very sorry, if we didn't get the chance to ask your question. You can send it in. I've asked as many as I could. But obviously, I didn't want to interrupt interrupt Robin Darren, as they were going through that. You've probably seen the logo on the slides there. Go to imaging, Robin Darren run an excellent, excellent service in helping us physical therapists learn to understand MRI imaging and elsewhere. And I'm sure if they just go to go to imaging.com. Rob, they will find the info underneath. I'm seriously hoping we'll get them back on again. Because, you know, we're not here to castigate radiologists or poke fun at them or pretend that we know better. But it's really, really helpful. I think when we can see that even people who we regard as experts in that specific field can still make mistakes. And it's okay for us to challenge that. Thanks to the sort of advice we're getting from guys like YouTube.

Darren Chandler
Yeah, without a doubt, Steven, like I say, I think more of us take a little insight into it. And some of this stuff is so easy to pick up. You don't have to be an expert. We could all see there was a white area on that phone. Just that alone go. We've got seen as a therapist. I think we're all on the right lines, you

Steven Bruce
know. Well, many thanks again to you, Robin down. It's been great to have you on the show. We will pester you until you come back and help us again. But that's all we got time for today.