ACJ instability – Ref76

with Ali Noorani

13th July 2020

TRANSCRIPT

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Steven Bruce:

I'm joined today by Mr. Ali Noorani who is a consultant orthopedic and trauma surgeon, who is the medical director of a group called orthopedic specialists whose main clinic is in Harley Street, London. And he's also a specialist in regenerative medicine. Ali, great to have you join us. Thank you for coming on.

Ali Noorani:

Steven, thank you for that introduction. It's a real pleasure to attend this lunchtime meeting. And again, thanks to the kind introduction. I am, as you know, I'm an orthopedic surgeon, I specialise in mostly shoulders and elbows. And then today we will talk about ACJ instability and that's one of my favourite topics. So I'm looking forward to catching up.

Steven Bruce:

Just a quick one. I have not come across your organisation, orthopedic specialists before. How does the group work? Are you a varied and multidisciplinary organisation?

Ali Noorani:

That's right. So the concept of orthopedic specialists have been around for, when I was a registrar. So being something that I did leading up to it, the group's been around for three or four years. We have now 20 consultants that work with us. Most of us work in central London with some of them practicing in the periphery of London. So they tend to come in and go out. We actually have quite a few Europeans in our group as well. Right? So it's like the number one elbow surgeon in the world, Roger van Reed, based in Belgium as part of the group, you know, Christian Clay, Ronald van Heerwaarden, two big osteotomy guys from the knee world based in Germany, they are part of the group as well. So the ethos of the group is very simple, right? We've gone out and said, grow slow, grow organically, but really get the best of the orthopedic community out there to work together. So all the surgeons tend to be smart people. They tend to be cutting edge as far as surgery is concerned, but also ahead of, you know, other stuff like biologics and rehab, et cetera, so that we can offer the patients the best treatment. So that's the basis of the orthopedic group and I think it's really fun being the medical director of a bunch of orthopedic surgeons that are regarded as some of the top in the world.

Steven Bruce:

Yeah. I noticed actually, when I was reading up on you earlier on that, obviously you've got an interest in regenerative medicine, but actually this is because you were trying to get away from surgery itself. Before we talk about the ACJ, do you want to tell us a little bit about regenerative medicine?

Ali Noorani:

Yes, of course. I mean, so for those in the audience that don't notice that I'm also a member and on the education committee for a group called EUSSER, which is a European society of shoulder and elbow rehab. So I've been very, very rehab orientated in my practice throughout, right? The ethos is, most people don't need surgery, they need good rehab. Some people need surgery, but they still need good

rehab afterwards. Right. but like most surgeons it's very difficult to work by myself. It's easier to acquire somebody like a knee specialist, for example so we have quite a few knee specialists that are regarded as some being of the top in the world. And they're moving away like I am doing from shoulder replacements. They're moving away from knee replacements. And why is that? They figured out that actually the concept of joint preservation is where we should be heading out. And in joint preservations there are surgeries that can help you. There are braces that can help it, rehab can help. But there's also a role for biologics, which include PRP, bone marrow, fat-based, nano fat stuff. So we became interested in that about four or five years ago. And because each of us had a big cohort of patients who were young with arthritic shoulders in my practice that I knew just shoulder replacement would not be a good option for them. And traditionally, you just can't do anything for them, but you start looking at, you know, treatment options for them. And there were some interesting surgical options, but what was really interesting was that went then back to nonsurgical options. So we formed a separate entity, called a regenerative clinic which offers patients these alternate treatments. But the concept is very interesting. So as a group, we have a very wide approach to everything. So we don't focus that everybody needs surgery or everybody needs rehab. You know, you have to look at a patient for who they are, figuring out what they need. Right. Sometimes they do need surgery. Sometimes they definitely don't need surgery. So if you're not blinded by the approach and you have a wide approach that can offer a patient anything from rehab to surgery, to biologics, to a combination approach, I think we will do the best for our patients. So that's where the regenerative clinic concept came about. And it does, it does really well for the patients.

Steven Bruce:

Yeah. I guess, thinking back a few years and I emphasise this is not my opinion, but other doctors would have said, very often if you went to see a shoulder specialist, the only thing he would consider would be shoulder replacement or whatever, because that was how he earned his money. That's what he did. And it's nice to hear that, you know, you're not alone, there are lots and lots of people we've interviewed who are saying, well, actually we've got to take a wider approach to this. And I guess also it's probably very helpful for your insurance, if you do fewer surgeries, because there are fewer adverse outcomes that can occur.

Ali Noorani:

That's right. I mean, to be honest, the malpractice insurance don't really care that much. And the insurance companies don't care that much. What the insurance companies like is, you know, you make a decision, you fix it and you let the patient go. Which is a bit of a difficult concept. Sometimes what you need to do is not fix a patient and do an operation, but maybe seeing them a bit more often to make sure that it's getting the right milestones. And that concept becomes really difficult for the insurance company, although it's cheaper for them, they do like their system to say, here's a problem, fix it, discharge, please. Right. And that's not what fits most people. A lot of my practice is also tertiary referral. So off my NHS and about 20, 30% of my private practice will be tertiary practice. And by definition, that already becomes a little bit more complicated because somebody already has had a go in some ways. So, I think overall, you know, the idea is that every patient is really different, and you see some, and you tell them you don't need surgery, but others, you meet them and you kind of say, you need to fix that. Right. And it's getting the right decisions what I think makes us as good surgeons and

certainly us in our group and myself. I wouldn't say surgery is the last option, what I want to say is surgery is the correct option for some people, but the majority of the patients don't need it.

Steven Bruce:

So let's get into the meat of this. Let's talk about ACJ instability. You said that's a particular interest of yours. How did that happen?

Ali Noorani:

Well, you know, it's part of the shoulder, as you know, so as a shoulder nerval surgeon, that's definitely an interest. But living in London is quite interesting. So London has a lot of cyclists, right? Also has a lot of people that do a lot of sports, especially weekend warriers, rugby. So you end up seeing AC injury scored a lot, right? So there are a lot of people that cycle and the fall off the bikes. And if you are on a cycle and if you're a reasonably good cyclist, you will hold on to the handlebars and you end up falling right on your tip of your shoulders. So you either break your collar bone, i.e. have a clavicle fracture or you have an ACJ injury. So as a shoulder surgeon in London, the practice of ACJ injuries is Pitt, right? So I see a lot of ACJ injuries. And, what I was noticing was that there are lots of different opinions on how to treat ACJ injuries. And when there are a hundred different operations to fix it and a hundred different opinions whether to fix it or not fix it, it certainly became very interesting because I knew that people hadn't really figured out how to treat ACJs. Then you have to start looking back into why that is a problem. And it was obvious. The problem starts off with the basics, people don't diagnose it correctly. The justification in my opinion is incorrect. So it's not prognostic on how to treat it. And certainly the ways of fixing it is all over the place. And so I spent a lot of my early career figuring out what works in ACJ, what doesn't work, thinking from a logical point of view, you know, one of the forces, the biomechanics around it, how do we need to make somebody better and then apply those in my patients with the evidence, and then you figure out, actually, you can get really good results in almost all your patients, if you apply common sense, backed by good research. And that's what we've done, really. So it's become my interest and people find me because if they have ACJ instability and therefore, I tend to see a lot of patients that have ACJ problems that have gone wrong because they know that I can hopefully sort it out for them.

Steven Bruce:

Can we talk etiology for a minute? You've mentioned a number of sort of traumatic possibilities there, are there non traumatic causes in your experience?

Ali Noorani:

Yes, actually what's really interesting is that there is that obvious trauma, as you know, somebody said, I kicked myself a band, here's my ACJ up in the air. Right. But there are the atramautic versions as well. You know, you still need to be careful whether there is true atraumatic, no trauma at all, or there has been subtle minor trauma, or there has been repeated overuse. So there is some element of traumatic elements, but we tend to see patients rarely, thank God, but there are patients who have collagen disorders, who have generalised laxity that also get ACJ problems. Right. In fact, you know, I think personally that even in patients who have ACJ pain, right, without any trauma is usually due to some kind of micro instability because most people know that ACJ arthritis is part of growing up, right?

By the time you have gray hair, most people have ACJ arthritis. Why is that? Because the joint is the size of your nail on your thumb, right? It's tiny. And throughout your life,the collarbone is the only bone that connects your shoulder to the rest of your body. So throughout your life, you have this tiny joint that is taking all the forces from your arm and transmitting to your body. And with time the joint wears out. So if you see more 40 year olds, especially people that have done sports and activity in their life, they will have imaging to show that they have ACJ arthritis, but that is not symptomatic arthritis. That is just a normal part of growing up basically, as I say, it's normal age-related changes and they're normal, they all hurt. They don't have instability, but you see some people that have normal looking ACJs and they have pain. Of course, you see some people that have some arthritic changes that have been as well. And invariably, if you look deep inside, it is not the arthritis perhaps that caused the pain, but it is that movement in the joint that aggravates the inflammation. Right? So if you can have a joint, ACJ that is stiff as anything, of course, it won't hurt because it's not moving. Whereas if you have something that is moving a little bit and it rubs, then that causes pain. So you do have atraumatic causes of ACJ pain that I personally think is due to instability as well.

Steven Bruce:

I was just thinking whether a particular sport might be vulnerable to it through overuse. And I know it's not a joint that one normally thinks of as being subject to overuse, but perhaps rowers or gymnasts, do they have particular problems?

Ali Noorani:

So the cohort that I tend to see quite a bit is actually weightlifters, right? So professional weightlifters tend to have a lot of ACJ changes. Occasionally they get a condition called osteolysis, right? So not just arthritis, but the end of the clavicle basically starts breaking down because of the over pressure. You know, every joint, like every ligament goes through a process of remodeling. We're always breaking and rehealing. And when you have breaking going at a slightly higher rate than rehealing you tend to see that osteolysis and those tend to recover pretty quickly, or they usually require some conservative treatment and they do well. Very rarely they require any surgery.

Steven Bruce:

They recover quickly just through normal rest and a gentler or different exercise, do they?

Ali Noorani:

Yes, exactly. Once you start offloading the ACJ, a lot of them recover, unless they've lost so much bone that they recover, and the joint is then unstable and starts causing them pain. So there are some people that do require injections or even surgery in the end, but that seems to be quite rare. So surgical intervention for something like an ACJ pain would be like eight to 10% at max. So conservative treatment usually takes care of most of them. It's interesting what you mentioned about certain sports, right? So I just mention something very briefly. When we do surgery for the ACJ, there are lots of smart implant companies that say, we need to have implants designed for the shape of the collarbones. And quite a few companies have databases of CTs of collarbones and other bones. And what they do is they design very specific implants to fit those bones, right? And then they say, well, if somebody breaks a bone at least we know what the average looks like. But the interesting thing is that the AC joint is not

always the same shape in all people. So if you are a young man or a woman and you start loading your AC joint early in your life, like doing a lot of cycling, doing a lot of lifting, your shape or the lateral and the clavicle is actually slightly different. So some people may have a very flat end. For those guys that load their joints quite a bit, you find that it becomes a bit more often an elephant's foot, slightly wider. Why? Because, you know, nature in your young age is remodeling to make the surface area slightly bigger so that you're able to take all these high impacts. Now I find that patients that tend to injure their ACJs are the rugby players, are the cyclists, they've usually been doing it all their lives. The people that injure the ACJs tend to be the ones that have a slightly bigger lateral end clavicles anyway, so then the implants that you have designed on a normal population don't work on them because they have a slightly different shape. Anyway, that was a small, interesting comment that we made.

Steven Bruce:

So the companies that are making those implants clearly they're selling them to somebody. Otherwise they'd just stopped making them. Does that mean people are fitting the wrong implants to people because that's all they have?

Ali Noorani:

Yeah. Well, there's subtle differences, right? So, you know, if you, you know, you can have something that is close enough, but when these companies go for something that is specifically designed for the, you know, the same company makes collarbone plates and they have a thousand CTs. And when they made the collarbone plate, I can tell you that collarbone plate fits better than any other plate out there. But when they designed the clavicle plates for the ACJ, it doesn't quite fit in perfectly. There's a few millimeters of gaps here and there. It still does the job beautifully, but if you want to make it perfectly fit, they just had the wrong cohort of CTs. So we encourage them to go and do the measurements on patients that have been cycling all their lives and then have a better implant. So the patients don't come to any harm and like I said, the implants do a really good job, even if they don't perfectly fit, you know, we'd like them to fit milimeter to millimeter perfect. But we know that, does that really make a difference? Probably not.

Steven Bruce:

Earlier on, you said that you see a lot of patients who've been misdiagnosed in the past. How does that happen? What would be your diagnostic process for looking at the AC joint?

Ali Noorani:

Okay. So I guess I'd have to think of some of the more recent examples, right? So for example, I've had a patient come in quite recently that had AC joint pain. And his X rays were pretty good, every view looked perfectly lined up and so on. And he had what would be the normal treatment to allow some rehab, he had two or three injections. Every time he had an injection of steroid it took the pain away for a while and it started working less and less and eventually decided instead of let's shave the joint and we shaved the joint and this just didn't work. And he was in a lot of pain and give it more time, give it another steroid injection, didn't work. And then he came and saw me and it was obviously somebody you have to start from scratch. So of course, you have to see the imaging and see what's been done, you know, and we picked up various problems. One of the problems that we picked up was initially that

there was a lot of fluid in the area that was receptive. The whole area had a lot of fluid in it. The first question was, is he in pain because he's had postsurgical infection, right? So you do all the blood markers and they were normal. And then you have to slow down a little bit. You have to think of every step, you had to eliminate the big step. So we took some aspiration out, lots of fluid came out. We sent it to in for microbiology including extended cultures, including enrichment culture, sometime things like p. acnes and so on, only comes out of two weeks of culture. We did that, all negative, which was great news. So we know that there's more than an infection problem, once we took the fluid out, I've noticed that he did have a lot of instability, right. There was a lot of anterior posterior instability. And he had now lost the end of the bone, which is important for providing stability. And he also had damage to the ligaments. He probably had damage to the ligament before, but he had now quite a bit of anterior posterior instability. I also got him a CT scan to have a very close look. And I found out that the resection was done in such a way that the contact of the bone was corrected, but there was a roof that was leftover. So although the bottom bit had been resected, there was still something that was catching. So now you had a raw surface, which was partially resected and just still catching plus a lot more anterior posterior instability. Then we had to go in and solve all those problems. So he required his 3D reconstruction. So I got his clavicle 3D printed, it's very easy to do. Is it necessary? Probably not, because you can imagine the whole thing, but if you have a model in front of you, you can really tell what's left behind because it's not normal anymore. Somebody has partially resected it. So you have to respect what they've left and not left. So we said, fine. So we know we need to chop the end off in certain ways to sculpt it a bit better. We knew that we needed to tighten up the ligaments around it. We knew that the delta trapezial fascia was a very important part of stability. We had to correct that as well. And ideally we thought that would be enough to provide him a good resection and stability. And as a backup plan, I said, if it's not enough, I'll put some artificial ligaments in. So in his case, what we did was just resect the end a little bit. And we made sure that we tightened up the ligaments and repair the delta trapezial fascia. So it gave him good dynamic stability and he did well. It was a relatively easy fix. Obviously rehab played a big part in it afterwards. I had a similar case. And this is quite a common problem. So there is a whole cohort of patients, especially young female patients with hyperlaxity that have a lot of ACJ pain, sitting on their desk all day. And the temptation is to after conservative treatment is to shave the joints and just say, that's all the problems. Or quite often, they continue to have pain for a very long time. And I found that those patients that have ACJ resection, that have a very good resection, still continue to have pain because of instability. And you go in and you put some artificial ligaments around the ACJ to provide stability and again, the pain goes away. So those are the kind of the subtle things that I tend to find actually quite often in my practice when things haven't gone quite right when they've had something else done before.

Steven Bruce:

What do you use as an artificial ligament?

Ali Noorani:

So the question always is, do you use artificial ligaments or do you use a patient's own ligaments? And certainly if there is any hyperlaxity or any collagen issues it's preferable to use artificial ligaments, and I've now moved to using artificial ligaments, even in normal patients, because why use a tendon that can be used for the ACL at some other stage. There are lots of things you can use. So there is the

LARS ligament which is available commercially. There's also a ligament called LockDown, also known as Surgilig. And these are basically polyestered materials, some kind of plastic material, but it looks like a weave that they tell you that incorporates into and becomes normal tissue and corporates on it.

Steven Bruce:

Are they effectively permanent or do they break down over time?

Ali Noorani:

They're permanent. Yeah. They're permanent.

Steven Bruce:

Can take you back to something earlier. A couple of people who asked for clarification, did you say earlier on that the clavicle is the most variable bone in the body?

Ali Noorani:

No. It's not the most variable bone in the body. I think there are two things I said about the clavicle. One was that it's the only bone that connects your arm to the body. So it is something that takes a lot of forces across the arm, right? Everything else that connects your arm to the body is muscles and tendons. The collarbone is the only bone that connects it and all the forces go to the ACJ. The second thing I said was the lateral end of the clavicle, i.e., the end of the clavicle where the ACJ is, that has a lot of variation in it. Sometimes you have the big wide ones, sometimes you have a narrow one. Sometimes you have one that slopes like this. Sometimes you have a slope like that. And all of those subtle things can make a lot of changes into patients' dynamics.

Steven Bruce:

Thank you. More questions coming in from the audience. This one's anonymous do you find that after surgery, that the range of motion of the shoulder is effective?

Ali Noorani:

Are we talking about particularly ACJ? So the idea is that your shoulder motion should not be affected and certainly doing surgery, if it affects the shoulder motion permanently, it's probably not the thing they're aiming for. There are people who develop a stiffness response and adhesive capsulitis type response, et cetera, in the main shoulder joint, yes, that can happen. And this is something that we try and limit as much as possible by early rehab, appropriate rehab, et cetera, but AC joint surgery itself is not something that limits shoulder movement. And although some people may get a reaction to any surgical trauma, to get stiffness, the idea is to limit that as much as possible. And the plan is that when the rehab is over, nobody should have less movement in the shoulder after any ACJ surgery.

Steven Bruce:

Elister has asked us to ask you what sort of rehab you recommend for patients? Or do you leave that to the physios and osteos and chiros?

Ali Noorani:

Yeah. So it's milestone driven. And a lot of the times, there are some good physios and osteopaths out there, they know what they're doing, but my job as a surgeon is to just tell the, in any shoulder surgery, is to give an indication to the surgeon, to the physios of the quality of the tissue, the quality of the repair and any restrictions that I think should be imposed because of that. So you want to aim to fix your shoulder, especially the ACJ in such a stable way that you can get the patients moving and going. Right. What does that really mean? I mean, people say, oh, get it going. Well, there are certain things you can do and certain things you can't do. And thats what we call kind of protective rehab. So for example, in a typical ACJ, we know that a lot of forces go across the construct of an ACJ repair when you do end range movements. So there's no problems doing things down here. It doesn't really know the ACJ. So why limit somebody in a sling when they can move somewhat freelier, they can move their elbow as much as possible as well, or in some cases, movements like this, where it's really end range, cross armed abduction, or really hand behind the back when, again, right towards the end of the motion or any elevation kind of around 120 or so, that is when you start torsional forces across the ACJ. So typically speaking, I would allow the patient to do full hand, wrist, elbow, scapular setting, neck exercises, and most shoulder things at waist level, or I'll ask even loading the cuff. Cause you don't want that to waste even noting the delta trapezial fascia. Our limit for the first four weeks or so, cross armed deduction, hand behind the back or any kind of elevation above 90 degrees. But the physios that work with me regularly know that occasionally there are certain patients who hit the milestones quite well, who have good stability and no problems at all. After two weeks, they'll go beyond. Sometimes you've got to hold the patient's back for six weeks or more as well.

Steven Bruce:

Bob Allen has sent in a question about a specific patient. Apparently, he's got a patient who suffers from psoriatic arthritis and also has ACJ pain, which may or may not be related. He's asked what you would recommend as being the best diagnostic tool for ruling it in or out, whether ultrasound scan would be adequate or whether it has to be x-ray.

Ali Noorani:

So again, a very interesting question about ACJ. So if you rely on imaging for ACJs, it will lead you in the wrong direction. Okay. Most Xrays will be showing arthritis in the ACJ and it may be a normal person. And then there are some cases where ACJ pain that don't have any imaging signs at all on an X ray. So, an x ray, although a very useful tool to rule out the bad, the ugly, like tumors and other stuff, and obvious problems with the ACJ. In most cases, whether you have arthritis or you don't have arthritis is not relevant because you can have one or the other. So the clinical diagnosis is the key in ACJ. An MRI scan could show you a little bit more, but again, when you see an MRI scan in everybody, so if you send an MRI scan that sometimes the GP sent for diagnostic purposes, which I think is wrong. An MRI scan will often report, there is ACJ arthritis. Why would it report that? Because they see it on the MRI scan. They see it, they have to mention it. It is almost never clinically relevant. So the way I think about ACJs, is that 90% of your information comes from a good history and examination. And then any kind of imaging afterwards is just to confirm your diagnosis or add a little bit more. So I tend to always go for an and X ray, an MRI scan if I need something more on an ACJ. I often don't tend to get an ultrasound scan, unless I think the problem is only ACJ after an X ray, when I'm sending them for an

image guided injection, for example. Imaging modalities don't help me with a diagnosis as much as other other sites.

Steven Bruce:

If RA, if arthritis is irrelevant, what is producing the pain in the patient?

Ali Noorani:

I think it's instability.

Steven Bruce:

So the pain sensors are in the ligaments or the capsule?

Ali Noorani:

Yeah. So I think there is instability and there is inflammation following that. And you have pain fibers in the disc. You have pain fibers in the posterior capsule, and you have generally speaking a lot of pain fiber, neurogenic things all around it. And that is where you get the pain. And we know that most people will have arthritis and have no pain in their ACJ, but we know that finding the arthritis by itself is not as relevant.

Steven Bruce:

We've got a lot of questions about hypermobility in the ACJ. And I'm wondering what the challenges are for you in dealing with a hyper mobile patient, specifically we've had whether it's possible to stabilise it through periarticular sclerosing injections such as prolotherapy, the aim being to passively stabilise the joint.

Ali Noorani:

Yes. So every joint in the body requires certain things to keep it stable. So you have the bony anatomy, the surface area contact. The congruency of the joint, you have the capsules, the ligaments all around it, you also have the dynamic stability that comes from the muscles. Now every joint requires a different proportion of these things. So if you look at a hip joint, for example, a lot of the stability comes from the bony anatomy and the congruency. And there is some added by the ligaments and there's quite a bit actually added by the muscles around it. Right. but not enough. Most of it comes from the anatomy. If you look at a shoulder joint, some comes from the ligament. Some comes from the bony congruency, but a lot actually comes from the muscle. So 60, 70% of the shoulder glenohumeral joint stability comes from the rotator cuff. In the ACJ, most of the stability, in my opinion, comes from the ligaments and the capsules around it. It's a joint that doesn't move that much. The second part of stability, the second most important part in the stability of the ACJ, I think is the bony anatomy. And then the muscles around it. So if you have somebody who has laxity around the capsular ligaments, what you need to do to help that is, you can't change the bony anatomy. So the only thing that you can do is either make the capsules a bit stiffer, or you can work on the muscles to provide better control of the ACJ. So your deltoid and your trapezius. So primarily the idea would be initially to decrease the pain so that you can rehab. So you can do any kind of injection in my practice and do rehab specifically to provide some

dynamic stability around the shoulder. You can do a lot of other injections to help as well. So yes, you know, potential of injections that can stiffen up the capsule and so on can help. There is absolutely no harm in trying for sure, especially as the next steps, when rehab has failed to provide muscle control is to consider surgical options. So if you have a hypo mobile patient, I will do everything possible to avoid surgical intervention. The reason is that surgery needs to be done for a good reason. If there is a reason not to do surgery, then you should do it. And secondly, surgery needs to be predictable and I find that if patients haven't engaged with a good rehab plan and they're relying on surgery, that's more likely to fail as well. So I really tend to push them again with conservative treatment, get the rehab done. And those patients that have engaged and have still failed the rehab, they tend to do okay with surgery. And if I do surgery on them, you can imagine that we're not really going to rely on their own ligaments to provide stability. So there will be artificial things, ligaments that you use to provide and to your posterior instability, as well as craniocaudal instability, but it's a big surgery. It is often not necessarily.

Steven Bruce:

Josephine has asked an interesting question. We talk a lot about the ACJ, but if that's unstable, what's going on at the other end, do you ever have to deal with the sternal end of the bone?

Ali Noorani:

Oh yeah, yeah, yeah. So the hypermobile patients tend to have more problems, obvious problems with the SCJ rather than the ACJ, symptomatic anyway. That is a harder problem, because you don't have that thick muscle envelope around that you have on this side of the deltoid and trapezius. You have some muscles around, but you don't have a lot around here. So yes, we tend to see them. The algorithms are pretty much the same and they tend to have injections to it. They tend to have rehab on it. And luckily most of them seem to be okay. What I do a fair share of surgery there as well. So I probably do about five or six of them a year. That's probably more than most people. It's a tiger country as we call it. So there are major blood vessels that are limb and life threatening if you nick them. So you have to be very, very careful. And if I do surgery on them, it's a combination of; to provide stability I tend to do two things. One is artificial ligaments and so on with anchors, but I also tend to provide some additional dynamic stability by using a sleeve of your sternocleidomastoid tendon, rolling it up and putting it through the clavicle. It's very fancy surgery. And the less I have to do of it, the more grateful I am, because I tend to get sent those surgeries when all else fails. And I still try to try and avoid them.

Steven Bruce:

I got a lengthy question here from Juergen, and I'm going to have to read it. Juergen says he's had a cycling accident and ruptured his AC ligament and has been given a false ligament. The end of the clavicle was removed. Supposedly this allows it to reset easier. This has undergone some lysis. I had a postop frozen shoulder and lots of pain for a long time, severe for most of the first 12 months, he still has shoulder pain three years later, an arthrogram shows that he has a large slap tear and tear to the biceps tendon where the pain increases if loaded, would that explain the pain? There was some talk of stapling the slap tear and anchoring the biceps tendon. Are these procedures generally successful?

Ali Noorani:

Fantastic. So let's go with the first one first. So unfortunately, a lot of the surgical techniques published by a lot of the people out there talk about chopping the end of the clavicle out because they're worried about arthritis. Most people that do ACJ surgery seriously, don't chop the end of the clavicle off anymore. Okay. In fact, it's been shown as far as 20 years back by a guy called, Wasaka that showed that even in cadavers, if you take the lateral end of the clavicle out, you increase a lot of the anterior posterior instability. So you're going in to stabilise an AC joint and you put some artificial ligaments in which help. Then you forget about repairing the muscles and you chop off the lateral and the clavicle, which is counter intuitive. It doesn't make sense. Often when people do that you tend to get the lysis and so on, but you also tend to hold patients back from rehab because you provided them ligaments, but then you're afraid that your repair isn't strong enough. So you kind of hold them back and don't rehab them aggressively enough, proactively enough. And they tend to stiffen up their shoulder. That is unfortunate, happens enough. So my first advice is not to chop the end of the clavicle off, address all the, if you're doing surgery on ACJ, keep the clavicle end, repair the ligaments. If you need to, repair the muscles, if you should do, if they are torn and then rehab them quickly and make sure that glenohumeral joint doesn't get stiff. Now, there are other reasons as well. So 10 to 20% of ACJ injuries tend to have a missed glenohumeral joint injury as well. So slap tears tend to happen in 10 to 15, 10 to 20% of the patients who have ACJ injuries. They may be from previous injuries, but we think a significant proportion of patients injured their biceps anchor, and they need a slab, or some kind of laboral injury or some kind of tendon injury of the cuff in addition to the AC joint. So it is important when you have somebody who has an ACJ injury to make sure they haven't got something else, and that usually involves a clinical examination. So unfortunately, in that case, they may have been missed. Now, if you have a glenohumeral joint injury, in addition to the ACJ, the immobilisation with the secondary injury is more likely to give you a stiff shoulder because why do you get stiffness, it's a body's reaction to trauma. So you have more trauma inside the glenohumeral joint. Plus your immobilised, you will throw up a lot of scar tissue. The pain is probably mostly to do with stiffness. The stiff adhesive post-traumatic capsulitis is more painful than actually a slap tear, but there will be patients who have an unstable biceps that get pain as well. So I would say that moving on from where he is right now, it does need a good look at, we need to make sure the shoulder isn't stiff. The shoulder is stiff, get rid of the stiffness. And yes, if after that, the slap is still painful. Then surgery is successful, but more often than not it's unlikely that if he's had a stiff, painful shoulder with that injury, that he will do well with a slap repair. What he actually needs is the labrum to be repaired independently, but the biceps needs to be snipped unfortunately, and needs to be fixed in the repair, i.e. a tenodesis. So that's what you would do well, and by all means, Steven, please give him my personal number and my email and I can talk him through it.

Steven Bruce:

That's really kind. Ali, I'm very conscious that you have a patient at two o'clock and many of our audience have a patient at two o'clock and it's now one minute to. So sadly, I've got lots of other questions, which I could have posed to you, but we've come to the end of our scheduled time. Fascinating stuff. And I think it's the first time we've addressed the AC joint specifically on this show. So I'm very grateful to you. Thank you for coming in.