

# Labral Tears

with Vipin Asopa  
12<sup>th</sup> June 2020

## TRANSCRIPT

*Please note, this is not a verbatim transcript:*

- Some elements (repetition or time-sensitive material for example) may have been removed*
- In some cases, related material may have been grouped out of chronological sequence.*
- The text may have been altered slightly for clarity.*
- Capitalisation and punctuation may be erratic...*
- There may be errors in transcription. If something appears odd, please refer to the recording itself (and let us know, so that we can correct the text!)*

Steven:

Today, we're going to be talking about the hip, in particular labral tears, and I have consultant orthopaedic and trauma surgeon, Vispin Asoja joining us from London. He's been a consultant for the last six years, has specialized in hip and knee surgery, and not content with a single doctorate - Vipin is a doctor of medicine - he's also got a PhD in articular cartilage biology. So Vipin, it sounds like you are ideally qualified to tell us all about the hip.

Vipin:

Thank you very much. So I'm going to begin my presentation. I just want to check, are you able to view it?

Steven:

Not at the moment, you need to share your screen for us.

Steven:

Before we start, are you back in full business now, are you back in surgery and treating more or less as normal?

Vipin:

We are just about to start the surgery in the NHS and the private hospitals we've started doing clinics. I think it is going to be a slow process because we have to take a lot of precautions for patients' safety.

Steven:

We've got that full screen now. Thank you. You want to tell us all about labral tears?

Vipin:

Yes. So the objectives of today's discussion are to describe the anatomy of the labrum; I want to then talk about the presentation and the assessment of labral tears - so history, examination ; and then (from your perspective) when to refer, what are the red flag signs that are important for getting further imaging and/or advice and management? And then I'm going to talk about the treatment options that are available. I'm going to discuss some cases as well as we go along, because I think they are an important way of assessing and reinforcing the teaching that I'm giving you now. So labral tears are a relatively new problem. They were first described in 1957 in two patients, who'd had a dislocation of the hip. Again, there was a description of non-traumatic labral tears in 1977. Then in 1986, Suzuki was the first person to describe a labral tear arthroscopically. So 1986, wasn't that long ago if you consider where we have reached now .

Steven:

"To Describe a labral tear arthroscopically" - does that mean just to observe one?

Vipin:

So it means to describe the pattern and position of the labral tear. For example, since 1986 surgeons have been able to describe different features of labral tears, say for example, their location, the

pattern of the tear, (whether they're jagged or clean-cut, for example) and also they've used other descriptions, for example, the mechanism of the way they were because as a way of classifying tears. And this has enabled us to understand better and develop better ways of treating labral tears. I'll discuss all of this in due course. So I want to just explain what's the labrum is first. So this is a diagram of a hip joint or an actual photograph of a cadaveric hip joint. And it shows or illustrates that the hip joint is a socket and the ball is the top of the femoral head. The labrum is a structure that is around the edge of the socket, and it essentially has multiple functions.

Vipin:

The labrum is attached to the bony rim of the acetabulum. There are different types of labrum found in people (say, for example, it may be flattened or rounded), but essentially it's described as a triangular structure. This diagram illustrates that. So 'B' is the bone of the rim of the acetabulum or the cup - the socket. 'L' is the labrum which looks triangular in cross section. But I want you to look at the relationship of the labrum to the lining of the joint called the articular cartilage. 'C' represents the capsule. It's important to appreciate this because when patients have problems with their labrum, for example, in a traumatic injury, it may often involve the articular cartilage. And at that point the anatomy is important because where cartilage is injured, then identifying that and treating that is important at the same time as repairing a labral tear.

Vipin:

The anatomy of the labrum can also mean that sometimes when patients have an MRI scan, it can appear as if there is a labral tear, but there actually isn't a labral tear. And that's because of these little clefts called sulci, which can be present and look like a tear. The other point, I just want to bring out in the anatomy of the labrum is that it's got a good blood supply from various blood vessels around the pelvis. It's thought that is more vascular at the base of it. And this is an important concept because we want to consider whether labral tears can repair for example, themselves or heal up and there's a debate about this. If there's a good blood supply then it is suggested that a tear could heal with conservative treatment. And in fact, this is what one argument for rehabilitation is based on.

Steven:

What's the nature, what's the composition of the labrum?"

Vipin:

So the labrum is made up of type I collagen, and it's got some other molecules within it, but it's essentially a fibrocartilage structure. That differs from articular cartilage, that's made up of type II collagen fibres. So what are the functions of the labrum? It looks like a small rim and one may think of it as not having many functions, but actually it's very important. It functions as a shock absorber because it increases the surface area of the socket with the extra rim around the edge. It helps to contain the femoral head inside the socket and it's thought to seal fluid within the joint. So it maintains what we call a homeostasis. The fluid acts as a lubricant, and possibly helps to spread the load going through the joint. Damage to the labrum can be because of a leak of the fluid and may result in early arthritis. Studies have shown that without the labrum, the contact stress between the femoral head and the socket increased to 92%. Labral tears can also destabilize the hip. And there may be a relationship between labral tears and arthritis due to the increasing contact forces, but also possible instability. The labrum is innervated with nerve fibres and so when it gets torn or when labral tears catch, they can be because of a sensation of pain and discomfort.

Vipin:

Labral injuries can be classified in various ways. They could be classified by the location, so they could be at: the front of the acetabul, the posterior aspect or the superior lateral aspect. They could be classified according to their type: are they flat? Are they sort of irregular? Fibrillated? (Which means there's no clear pattern), are they a long split along the rim? Also, what type of tear is it? Is it a complete detachment from the articular cartilage or is it a tear within the substance of the labrum?

Steven:

This might sound a silly question. You've put on that second bullet point, 'longitudinal peripheral and unstable'. What's the difference in presentation between stable and unstable. I mean is an unstable tear likely to flap underneath the femoral head, as you might get with an articular cartilage in the knee - with a meniscus in the knee?

Vipin:

I think the concept is similar, so when it's an unstable tear it has a greater ability to move and get caught and that can because more frequent episodes of sharp catching pain. A labral tear is normally described as a background of an aching pain with episodes of mechanical, sharp catching pain. So the because of labral tear can be described as follows. There are triatic because say, for example in contact sports (being impacted from the side for example), another because is if a patient has impingement of the hip. There's a lot that has been said about femoroacetabular impingement. Say for example, if there's a cam morphology of the femoral head (that means that it's not a round ball, but actually possibly aspherical). Then that can catch underneath the labrum as the hip moves and precipitate a tear. Another because for this sort of tear is a pincer impingement.

Vipin:

Again, the bone of the acetabul catches on the top of the femoral neck and it's in the area where the labrum is, and that could catch and because a tear. Patients who have laxity of the capsule around the hip joint, could have repeated episodes of damage to the labrum, that could result in a tear because the hip is less stable. This could happen in certain people who have got a predisposition to hypermobility, for example, but it could also happen in people who do twisting sports, such as golf, and that can stretch the capsule and make it loose. Going along this concept of abnormal capsule and/or anatomy, dysplasia of the hip, can be a precipitating factor for labral tears. Dysplasia means an abnormal socket, head and/or position of the socket and the head; if that's the case, then patients may be more prone to sustaining tears of the labrum when they're undertaking certain activities.

Vipin:

Another because of labral tears, is the classic degenerative tear that can occur in slightly mature people. This may be due to changes in the anatomy changes in the structure or the biology of the labrum predisposing it to tears, but importantly tears can also be associated with other conditions. So I want to talk about differential diagnosis briefly because we all get fixated on an MRI diagnosis of a labral tear, but it's important to consider that some of our athletes or patients that do a lot of activities may have other problems within the hip. So briefly we could consider things like osteitis pubis, strain, inflammatory arthritis and osteoarthritis. There are other issues around the hip that could mimic symptoms, mechanical types of symptoms. There are things like hernias that can because pain, so it's just important to maintain an open mind.

Vipin:

One of the things that has been acknowledged in Western society is that anterior labral tears are more common. But looking for example, at populations in Japan. Posterior tears are more common. So this is an interesting question-why is this the case? Is it because there are different ranges of movement in the different populations ? Are tissues different genetically? Is the anterior labrum more susceptible to tearing, for example, with the sports and activities that we do? Does sitting down or sitting in a cross legged position have more predisposition to tearing? I don't think we really know the answer to that?

Vipin:

So I've just given a bit of a background about labral tears. We've talked about the anatomy and we've talked about one or two interesting questions, including classifications, but what does that mean from a clinical perspective? What questions do we need to consider when we see our patients? Don't forget that sometimes symptoms can be insidious. They can just come on gradually. And that happens in most patients. Patients also present with a history of groin pain in 50% of cases and they may describe it as mechanical in nature, but often it could be a dull pain with episodes of sharp catching pain. When people have groin pain, I also ask them about other things. I focus on things like the sporting history. Have they been involved in contact sports, pivoting type sports, like golf, football, hockey, ballet as well.

Vipin:

{Steven, "I've Already got a question from somebody who is a former ballet dancer and wants to know about labral tears. " } Running and sprinting are associated with labral tears as well, presumably because of the forces that are put onto the capsule and the labrum in hyperextension? Other activities that we do, for example, those that involve extreme ranges of motion may contribute to damage to the labrum and the structures around it. I ask patients, where is the pain more ? What is its nature?

Vipin:

Sometimes people, describe groin pain. They may talk about pain in the buttock. So that could be a serious sign of Posterior labral tears. They talk about thigh pain as well. And they also have often other symptoms, so things like clicking, locking, and catching. But at the same time as asking questions about the labrum I ask them generic questions as well. So do they have aching pain? What precipitates it? What's their function like? And any other past medical history? These are all important questions to ask. When we think about our treatment process, assuming it's a labral tear or a labral tear with other pathology. I examined the patients and this is one of my nurse colleagues whose kindly offered to be a model? So I look at the gait, firstly, That wasn't a good examination of the gait, but it was an illustration. The question is, what am I looking for?

Vipin:

I want to know what type of gait she's got or he's got, I want to know if, for example, there's a problem with the foot and ankle, even if there's a problem with overpronation of the foot. But also importantly, I'm looking from the side to look at muscle imbalance and also from the front and back. Are there tight flexors? What are the spinal muscles like? Is there an inhibition of muscle activity? Because this is important from the perspective of rehabilitation and trying to help patients in a conservative manner. I then carry out more specific examination of the hip. So I'm going to

show video of a brief examination of the hip illustrating some of the concepts and then I'll talk about the tests in a bit more detail.

Video:

Hi, I'm Mister Asopa. Can I ask you to bend your right hip up to your chest please? Pull it as far as possible. Let me take your right hip. I'm going to demonstrate the flexion adduction and the internal rotation. Is that painful? { Patient "No"} Now bring the leg out please, to demonstrate the flexion, adduction and external rotation test. Is that painful? . Bring your leg out straight. Does this help if I do this? .So Bend your leg up. I'm checking the rotational profile for the hip by verifying internal rotation and external rotation. Bring your leg down now please, now sit over the edge of the bed for me. Bring your knees back That's good. I'm assessing the foot progression angle. Can i get you to lie back onto the couch, lie on your tummy please. I'm finally doing a posterior impingements test. Relax your leg please. Extension, adduction and internal rotation. Any pain there? { Patient "No"}

Vipin:

So you notice that I was wearing full PPE as recommended at present due to the COVID situation. So that's a face mask, visor, gloves and plastic apron. So what was I looking for? So I did the classic impingement tests. So the flexion, adduction and internal rotation is the most sensitive test to demonstrate catching of the labrum. Posterior impingement tests can be done to illustrate again, impingement of the labrum in the hip and then with less sensitivity, the flexion abduction, external rotation test.

Steven:

Sorry to interrupt. I don't want to put you on the spot here. You've said that the first test, flexion adduction internal rotation is the most common feature. Do you have any idea of how good it is in terms of specificity/sensitivity?

Vipin:

I don't. I would say it's fairly good. I'm not sure about an exact figure. I would say that I normally combine that test with a resisted straight leg raise test. And I think together the sensitivity and specificity is very high. If more than one of them are positive it's very likely there's a labral pathology going on.

Steven:

What would you regard as positive? Would that be simply pain or would you call clicking or any other symptom sign positive

Vipin:

Sharp catching pain is the feature that I use for diagnosing labral tears, but there are other things that can cause it. So other pathologies around the hip, but clicking as well could be, could be a feature of labral tear. Clicking can occur because of other things going on in the hip as well. So I put my focus on, in terms of examination, the sharp catching pain that's demonstrated by these tests. So what is this test?

Video:

Hi, can you lift your leg up and push it against my hand, please? Does that help?

Vipin:

So that was the restricted straight leg raise test. And again, I use that with the flexion adduction internal rotation test to confirm whether I think clinically there's a labral tear or not. Sometimes these tests are negative, but I think together it's quite uncommon to see that. Other tests that I've demonstrated with a rotational profile. So normal internal rotation is about 15-20 degrees with the hip flexed to 90 degrees and external rotation, 45 to 60 degrees. When I do this test, I check for asymmetry between the sides and if someone's got a significant difference between the two sides or something significantly different to this range. Then I always consider whether the hips are dysplastic. Sometimes people with labral tears also may have slight limitation in the range of their motion, maybe subtle compared to the other side. So I examine both sides. And I also check for pain on internal, external rotation with the hip in extension, because I'm looking for early degenerative changes, particularly around the area where the labrum may have been damaged, or if there is coexisting arthritis, as we may see in the more mature population. And that's important in deciding treatment options.

Steven:

Sorry, can I interrupt again? Because we've had a question from Jono. Jono says, what about the quadrant grind test which I'm not familiar with, but I'm sure you are.

Vipin:

I don't do any of these other tests because I find that my most sensitive options are to do the flexion adduction internal rotation and the resisted straight leg raise tests.

Steven:

Right. Okay. Thank you. Can I ask you since we've unshared your screen briefly, can I ask a few other questions before we move on?

Vipin:

Yep.

Steven:

Sarah says if a patient's imaging appears clear yet there are clinical signs of a labral tear - clicking deep ache, limping after sitting too long, unable to maintain cross leg due to pain, and that responds to a steroid. If it doesn't show on MRI, would you still treat it as a labral tear?

Vipin:

I would -If the patient remains symptomatic and has responded to a steroid injection it suggests that it's an intraarticular pathology. And if that's the case and they were not responding to conservative treatment, one could offer the patient a surgical option as well, i.e. An arthroscopy to have a look inside. And obviously that would be with discussion with the patient and the rehabilitation specialist.



Steven:

Thank you. Joss has said, why would a tear occur as a result of an anatomical variant? Surely the body would compensate for that. And it would be a lifelong issue, not something that occurs suddenly without provocation.

Vipin:

When there's an anatomical variance - for example, we see this a lot in children that may have Anatomical variance and as they grow up, they manage. But then as time goes on then the joint and the tissue biology is unable to compensate further. So for example, in patients who have dysplastic hips, the articular cartilage can be smooth and functional for a long time, but then maybe in the twenties, thirties, patients complain of increasing pain in the hip joint. And we know that their hip joint articular cartilage can degenerate at an earlier age and the same principle applies to labrum and other soft tissues because whilst the anatomy is a variant and it's still functional, it's not within a normal region, so continuing to use a joint in a situation where the anatomy is not normal means that it is more predisposed to getting injury earlier than later on.

Steven:

Right. Thank you, we've got a question too about your preferred imaging for diagnosis, but I think you're going to come onto that a bit later on -more about the imaging- aren't you. So I'll let you move on with your slides. Thank you.

Vipin:

Okay. So I did this test

Video:

I need to pull it out a bit please. I want you to tell me if this feels uncomfortable or hurts if I do this, {Patient"No"}, and this, {Patient"No"}, thank you.

Vipin:

I sometimes do this test as well. It's an investigation to look at the ligamentum teres to see if there's any pathology with that as well. And the reason I do it is that patients who have labral tears and complain of instability or catching may have some problem with their ligamentum teres that may precipitate instability. So the ligamentum teres examination that I did was described by (Parbinder Sing et al? - Reference unclear) a few years ago. And it's essentially a way of stretching the ligament teres on rotation to see if it elicits pain. If it does elicit pain, then it's positive. So you may have seen a patient ;examine them. When would it be sensible to refer for imaging? So for me, I think if a patient doesn't improve with some early treatment options, or you're worried about them due to a history of progressively worsening pain, increasing difficulty weight bearing, and/or night pain specifically, then it may be worth getting further imaging to exclude any serious pathology, also consideration needs to be made with past medical history. For example, any history of malignancies, immune deficiency, IV drug abuse, because there may be an increased risk of, for example, getting an infection, a serious problem that can be treated early on. These are quite rare, but one must be vigilant . So I'm going to move on to imaging now. I want to talk about, what I do in clinic because I think it's important so that it can be appreciated what information can be obtained from each modality.



Vipin:

This is a plain x-ray of the hips and pelvis. What features could I see on this x-ray that will be helpful to me in treating a patient with a labral tear? So I want to know from an x-ray whether there's any degenerative change. I think x-rays are good at illustrating that. I want to know if there are any features associated with femoral acetabular impingement. So for example, in an aspherical femoral head, I want to know if there's something called Coxa Valga. So that means that the angle of the femoral neck is more vertical than normal. And also whether there's other anatomical abnormalities, for example, a reduced head-neck offset.

Vipin:

Other things that I can find from the pelvic x-ray are evidence of dysplasia of the hip - so an abnormal shape and also an abnormal position, so acetabular retroversion. This radiograph illustrates that. So on the right there's one pattern of x-ray and on the left, you can see another pattern. One side appears the way it does because of acetabular retroversion and the other side is normal. So I use radiographs to help me a lot in terms of planning treatment. If there is a significant acetabular retroversion, then it's important to consider early surgical treatment in terms of trying to realign the pelvis, if the patient is young, so that if they have a labral tear that can be treated at the same time as an osteotomy, so that their joint can be preserved and it doesn't develop arthritis at a younger age. So this is an example of a patient. So this x-ray shows some interesting features so on our anatomical left side, there are significant degenerative changes. So one can see a collapsed femoral head, abnormal shape of head. On the right side you can see that there is some preservation of the joint space, but there are early signs of degenerative change. And there is some impingement either due to an osteophyte or abnormality at the femoral neck region,

Steven:

On that image the degeneration on the left side is pretty obvious less so I think on the right. What is it that draws your attention to it there?

Vipin:

So on the right side, I look for increasing sclerosis or thickening of the bone just above the femoral head. So in the acetabulum I can see to me that appears increasingly white. And that's suggesting that increasing load, abnormal loading going through the bone and the bone is compensating by laying down more bone and is doing that because the cartilage has been damaged or the biology is damaged. So for example, a labral tear due to an aspherical femoral head has resulted in the fluid leaking out, this normal synovial fluid. That means that the cartilage is under pressure. There's increasing contact loading, as I described earlier, that could precipitate thinning of the cartilage and a response in the bone that represents early degenerative change. .

Vipin:

So sometimes it's useful to get an MRI scan. If a patient had more significant changes then I wouldn't consider getting an MRI scan. Sometimes patients come to us with an MRI scan and without radiographs, but radiographs may sometimes give the diagnosis of osteoarthritis. In which case for me, I wouldn't proceed on to getting an MRI scan. But if we do MRI scans, for example, in this patient, we can identify labral tears. So this arrow illustrates for example, a labral tear, but don't forget MRI scans are all so very important in excluding other pathologies. So if the X rays didn't look significant, or there was a history of cancer, then an MRI scan would help us to rule out various

things such as metastatic tumours. It could help us to rule out stress fractures in younger patients. It can help us to rule out avascular necrosis and other pathologies. So it is an important modality. And most of my patients, who have preserved joint space, get an MRI scan.

Steven:

If you're referring for MRI yourself (or let's say one of our viewers: osteos, chiros, physios, are doing that) do you request a specific investigation or is it just general hip MRI?

Vipin:

I request an MRI scan of both hips actually, and on the form I just say that I'm concerned about a labral tear. In the recent past, it was common for people to request MR Arthrograms. And this is essentially an MRI scan with an injection of contrast or dye into the joint. I don't think that's necessary these days because we have access to either very good quality, 2 Tesla, MRI scans, and even high resolution, 3 Tesla scans. So software now allows us to make diagnosis in most situations with those imaging modalities.

Vipin:

I request various sequences and I work with radiologists who process the images and then come up with images on our system and a report.

Vipin:

But it's important to note that whilst we rely on MRI scans, (we think they're like, you know, the gold standard) , it's far from the case because sometimes we can see features that appear to be like a tear, but it's actually a normal anatomical variant. I mentioned the sulcus at the start of this presentation. It's important to be aware that sulci can be present. And I use experienced radiologists to help me with the scans in terms of reporting them and looking for tears. When I look at an X Ray and an MRI scan, (and in fact, going back when I examine a patient and take a history) I think about other problems in the hip at the same time, it's not just about labral tear. What about cartilage injuries? - The lining of the joint is there fraying of the cartilage is there thinning of the articular cartilage?

Vipin:

More importantly, is there a loss of cartilage? Is there a flat, because this affects the treatment options that I talk to with the patient. I'd be more likely to be aggressive in terms of surgery, if there was a cartilage problem and a labral problem in a young patient. Otherwise I'd be pro going for rehabilitation in the first instance. If there's a ligamentum teres injury, again, that may affect how rehabilitation is undertaken, but if there is inflammation or synovitis associated with that, then injections may be more likely to help initially to help reduce pain and inflammation at the time of rehabilitation; or even surgery to try and limit and treat inflammatory areas. Maybe I'd debride a ligamental tear at the same time as repair a labrum. Sometimes patients may have loose bodies from cartilage fragments or parts of the torn ligamentum teres that may catch. I think it's appreciating this from the scan, if possible, or considering arthroscopy, if you're concerned is important.

Vipin:

Ligamentum Teres, as I mentioned briefly earlier, can become injured because it acts as a secondary stabilizer when there's a labral tear. And so a labral tear may lead to ligamentum injury and displaced

tears of the ligamentum Teres can cause impingement in hip flexion. So what are the treatment options for a patient who's got a labral tear? So I'm assuming that it's the main problem and there aren't any other major issues. But the first thing I tell patients is undergo relative rests. So stop running the long distances, maybe reduce it significantly: walk, cycle, try something different. Anti-inflammatories may be useful, but also focused physiotherapy. Sometimes patients need an intraarticular injection. So we talk about the use of steroids. Maybe there's a role for PRP as well. But steroids at the moment are not recommended because of the COVID situation, but it's likely to change.

Vipin:

The reason was that it was felt previously, the steroids may increase the risk or susceptibility to COVID. But I think in the very near future, that is likely to change. The government and/or NICE may recommend that steroid injections are potentially safe in certain situations, but we should wait for their guidance. It's important to consider other surgical treatment options. So for example, if examination revealed suggestions of a dysplastic hip then it may be worth getting a CT scan to investigate whether the bony anatomy is different, because if it is, and there's a labral tear then it may be worth considering doing an osteotomy to correct the abnormality and the labral tear early on, rather than just doing rehabilitation. If there is degenerative change in a labral tear, would you consider offering a patient, a joint replacement, if it's significant, for example? If it's a minimal degenerative change, you might consider: arthroscopy, joint preservation surgery to remove the bone that may be causing it from the acetabular impingement, treat the tear, treat articular cartilage problems with microfracture or augmentation with, for example, PRP, glue down any flap tears. If there's a vascular necrosis, should we be doing something completely different for example, a core decompression. These are various options that I think about when I see a patient before coming on to hip arthroscopy. For me, hip arthroscopy is a last...

Steven:

We've got five minutes left of the schedule. The allotted time that we gave, are you prepared to run on a bit longer? Would that be okay?

Vipin:

I'm happy to do that because I've got some clinical cases we should talk about.

Steven:

I'm really looking forward to hearing those. Going back to your previous slide, you talked about focused physiotherapy. Do you have a personal preference on what physiotherapy protocols are employed?

Vipin:

I'm going to discuss those in the next couple of slides. So the rehabilitation theory, I believe that rehabilitation has got a strong importance in managing these patients. And we know that from recent literature, looking at the treatment of femoroacetabular impingement and labral tears. Essentially physiotherapy and rehabilitation does help and can help significantly patients who've got labral tears. Surgery may be indicated and may possibly offer longer term improvement or better outcomes. But again, there's a lot of debate in that field, but the reason rehabilitation can help is because the restricted exercises may promote better physiologies - so less inhibition of movement,

there's less compromise to the flow of nutrients and it may be possible that labral tears can help. So in terms of the protocols that I would recommend, firstly, I'd want to limit pivoting and extreme ranges of motion.

Vipin:

I'd want to limit the extreme activities that most of our younger patients do. For example, running. I'd want to address the muscle imbalance so I'd start by focusing on improving alignment, improving muscle imbalance, and consider the whole limb. So look at medial arches of the feet, orthotics needed? - Address those. Address any stiffness in the lower limbs that patients can get to normal functional position without their increased activities. And then progressively increase those to uneven surface training with a view to trying to return to normal sporting activities. But essentially I use these concepts, but I let every therapist use their own modalities and their own processes because everyone has a way of dealing with patients to try and achieve these goals. I hope that's answered your question. So can labral tears heal with conservative treatment?

Vipin:

There's evidence that frozen cadavers with labral tears, show evidence of what we call neovascularization, so new blood vessel formation around the tears. And that means that there is some potential for labral tears to heal and that's supported by the evidence that shows that conservative treatment can help patients have improved symptoms and return to better qualities of life. But the other side of the coin is that there are reports that patients who've had labral tears who have improved symptoms, still continue to have labral tears when they're investigated or treated further with arthroscopy, for example. So I would say that in some situations, labrums can heal with conservative treatment and it's worth giving patients a good go of conservative treatment once you've excluded any serious pathology that would warrant surgical intervention. So that means getting good imaging, getting a good assessment and then continue with conservative treatment in the first instance.

Vipin:

Arthroscopic interventions are useful if there's loose bodies or concern. It is useful to treat damaged cartilage and to reduce inflammation around damaged structures. It's good at removing impingement from ligamentum teres, removing any extra bone that can be causing impingement and repairing and debriding the labrum to stabilize it, to reduce mechanical symptoms. Don't forget hip arthroscopy, and also treat other causes of clicking and snapping. So, for example, the Iliopsoas tendon inside and then maybe a bit more sort of on the peripheral compartment, doing ITB releases and even treating inflammation on the outside of the hip. I wouldn't really treat these until I've gone through a good rehabilitation program and maybe considered injections to try and settle things down because for me less is best unless it's surgically indicated. People talk about rehabilitation after hip arthroscopy. So I just wanted to briefly mention this.

Vipin:

So O'Donnell from Melbourne. Parbinder Sing and colleagues have talked about four phases of rehabilitation afterwards. So I'm just going to briefly mention preoperative phase protecting tissues and maximizing mobility or range of motion early on. And then focusing on stabilization, maintenance of fitness before returning to loading and activities at 6 to 12 weeks. Essentially these are processes that we use in terms of rehabilitating patients. When we treat them conservatively.

This slide seems a busy slide. It illustrates those four phases, but I think your viewers will have access to the PowerPoint. And I'm happy for that. So I'm going to present two clinical cases. First is a 56 year young chartered surveyor fund manager and pilot, quite an active guy, walks a mile a day, but has had difficulty flying because of aching in the right hip. So examination revealed: negative Trendelenburg test, a positive flexion, adduction and internal rotation test, but then pain on internal, external rotation and extension. So, to me, I'm thinking there might be some labral pathology. There might be some arthritic pathology as well.

Vipin:

So when I do radiographs, I look closely if there any features of the things I've mentioned. So if I bring to your attention to the right hip, I don't know if you can see my arrow on the screen. So I look at the femoral head. I can see that there is an Asphericity of the femoral head. I can see that there's a bit of extra bone formation and there's possibly some thickening of the bone suggesting some early degenerative change, but interestingly, the joint space appears relatively satisfactory otherwise. On the lateral view, I can see that there is again preservation of the joint space, but a bit of thinning towards one side. So I think there may be a bit of early 'wear and tear'. There is some feature of degenerative change in the hip, but also if he's getting some mechanical symptoms, is there something else going on?

Vipin:

So I requested an MRI scan. So an MRI scan shows various features. Number one, it shows a cyst in the labrum. So this is a cross sectional view of the patient's right hip, an MRI scan. That white represents a cyst. And the labrum is a triangular structure that is essentially defined by this, by what I've illustrated with the arrow the cyst is here. And this is part of the acetabulum. The femoral head seems to be slightly irregular on this view, but I think the coronal view can better illustrate the cyst at the base of the labrum and/or in the edge of the acetabulum. It also illustrates an irregular joint surface and possibly a fissure in the cartilage. There may be some signal change in the bone, suggesting some early degenerative changes involving the acetabulum, as we suspected from the x-ray. There's an aspherical femoral head. There's a bit of inflammation around the outside of the hip. So that's due probably to compensation. So there's trochanteric syndrome - inflammation around the hip, possibly secondary to the early degenerative change in the compensation due to the labral tear.

Vipin:

The MRI report suggested an effusion in the hip as well, and fissuring of the articular cartilage and the bursitis, or inflammation we talked about. The question is what are the treatment options in this gentlemen. So, the options are to do nothing. It's important to tell patients that always - take simple pain relief and activity modification. Sometimes we could offer them injections. So for this patient, I talked about an intraarticular injection of steroid and local anaesthetic that could calm things down. Potentially steroid injection can be put into the trochanteric region as well. They could tell us whether his pain is coming from the Trochanteric region or from within the hip joints. Sometimes patients bet and respond to an injection in the outside of the hip. Even though they have a labral tear and degenerative changes in the hip they may get significant benefits that could last for a long while and combined with physiotherapy, it may help them to manage their pain and symptoms before they require surgery. Sometimes injections in the outside hip don't help because obviously the main problems in the hip. I try injecting that at second stage, if that helps, then we can focus our treatment options on the inside of the hip joint. Again, that maybe hip arthroscopy or joint

replacement surgery. But in this situation, rehabilitation has an important role because I think it can help with retraining the muscles, strengthening the muscles, improving joint motion and giving things time to settle. So he had already had some physiotherapy beforehand and we discussed various options and he chose hip arthroscopy. So I undertook hip arthroscopy on him about a year and a half ago. I treated the labral tear by debridement because it was a degenerative tear and I also did chondroplasty of his articular fibrillation or surface -so smoothed the surfaces out. And with continued rehabilitation he was very happy with that. So I've got a second case, but I don't know if there are any questions from your viewers.

Steven:

Oh, I've got huge masses of questions. I was trying to save them to avoid interrupting you again. Because I get told off for that when I interrupt my speakers too often. Do you want to run through this and then we'll do questions?

Vipin:

Yup. So this is the second case that I want to illustrate. To me this is a red flag. So 29 year old female, who's a runner, has been doing a lot of running, but just doing relatively short distances, sort of 6K, 8K. She had gradual onset of left groin pain that started last summer, but she'd been running and then rested it for a while and symptoms had settled. Then it came back again. She'd seen a physio around the time of the troubles. She had also had some rehabilitation, but without benefit. She then saw her GP and the GP reassured her, but she continued to try and run, but the symptoms worsened and then things got quite bad over the six month period before I saw her. So she'd even presented to A & E and they didn't do any imaging, but actually examined her hip and reassured and said, 'there's nothing urgent we'll bring you back for follow up.' There came a point when she was unable to weight bear and required crutches four weeks before she came to see me.

Vipin:

So before she came to see me, she saw one of my sports physician colleagues who did an X Ray. So based on this history, what could it show? . So this is the x-ray that was done and it shows the pelvis, it shows both hips, but the most striking abnormality illustrated by this arrow is a fracture of the left femoral neck. And that would explain why she's been unable to weight bear for four weeks. And this had been missed by various members of our healthcare team. When I saw her, I was quite concerned because when a fracture, presumably a stress fracture is missed for four weeks, then the chances of it healing by surgical fixation are quite low. However, I went on to fix her and I used some special growth factors at the time and six months down the line she seems to be doing quite well. But I need to follow her up for a further two years to make sure that she doesn't develop complications of avascular necrosis or damage to the blood supply to the femoral head because this injury was missed.

Vipin:

So that case illustrates the importance of considering red flags in the hip. If you're worried about patients not improving just get some imaging at least, and then continue treatment once imaging has been done because most surgeons now would choose to offer patients conservative treatment options in the first instance, unless it's surgically indicated that they would benefit from surgical treatment. I hope I've met my objectives, which were to talk about the labrum and talk about:



presentation, assessment of labral tears when to refer and various treatment options that are available to us.

Steven:

Before we go onto the questions from our viewers, one thing I'd like to ask is that you said that your previous patient had been through a number of therapists and hadn't been diagnosed, (without wishing to cast aspersions on anybody) so do you think it's relatively easy to miss things? I mean like a hip fracture. It seems unusual.

Vipin:

It's actually very easy to miss hip fractures. One doesn't expect a 29 year old to have a hip fracture. Groin strain, groin pain is very common. Labral tears are common, and we're told that conservative treatment options can help patients with these conditions. But it's always important I think, on hindsight, that if things aren't improving consider further options. I can't remember how long or whether she just visited one of the healthcare providers once or whether she saw them several times. I think these things are important. It depends on the relationship the patient has as well. This patient is one of those unfortunate patients who developed a hip fracture, that went on to become a complete fracture. Sometimes they can be incomplete fractures and as we all know, those can be continued to be treated conservatively in certain situations.

Vipin:

Sometimes they need fixation as a prophylactic measure. Thank you. Let's turn to some of the questions from our viewers. You won't be aware of this, but the people watching this on Vimeo have developed this HUGE tendency to give themselves, names of vegetables, which they can't do on Facebook. But I'm going to call Vimeo our vegetable patch from now on. And the 'potato viewer' says, (going back to your special test) if the restricted SLR is painful during the phase when the patient is actually pushing into the practitioner, presumably that counts as positive. But what if it's painful when they're actually just lifting the leg itself? Is that positive as well? So for me, a positive is only when they've lifted it and then push the leg against your hand. So if it's positive before lifting, then I wouldn't call it a positive resistive straight leg raise, because what I'm trying to do is catch the labrum by asking the patient to push it against my hand.

Steven:

Josephine says, what is your opinion on labral grafting?

Vipin:

I think labral grafting is an important treatment option in certain patients who've got good preservation of the joint surface, but have got a very damaged labrum that may, for example, have been debrided surgically previously, or may have worn away significantly due to repeated injury. I think that grafting labrum may help us to try and restore the anatomy of the hip joints to it's more native nature. But it may be that the grafting that we do may improve the situation for several years, but it may not be as good as having a normal hip joint. So I think it's work in progress. I think it offers exciting potential and opportunity for patients with severe damage.



Steven:

Robbin has asked about the anatomy of the joint. I mean, he said is the histological junction between the articular cartilage and the Labrum an abrupt change, or is it a more of a blended transition, such as a continuation structure like the MCL and medial meniscus?

Vipin:

I think all the structures, all the interfaces in our body have a transition zone and that transition zone is important and there may be anatomical differences between people or histological differences that could account for predisposition to cartilage injury, for example, or meniscal problems and labral problems in patients.

Steven:

Okay. Thank you. Jonno has asked how arthritis might present differently either with or without a tear associated. Is that easy to distinguish?

Vipin:

It depends. I look at the patient first, so are they more mature for example? . Do they describe more aching pain, less catching pain, and do they have a restriction in activity? Are they limited in terms of their walking distance? . I think of these as main presenting features, but again, with a younger patient there can be quite significant arthritis, but again, the distinction can be difficult. And so I find X rays very useful in that situation.

Steven:

Jennifer has asked about whether the Stinchfield test (which I think is your resisted SLR ) demonstrates extra articular muscle problems as well as intraarticular or femoroacetabular.

Vipin:

I think she's right. It demonstrates a whole host of issues. I mean, for example, pain could be due to pain that's radiating from other sources, difficulty lifting the leg, but for me, the specific test of pushing it against resistance focuses on the labrum. There is the Iliopsoas muscle at the front, for example, that could crossover, but I would do another test for Iliopsoas. If I was concerned about that. I'd flex the hip to 90 degrees, then ask to do resistance of that. So I do multiple tests to try and elicit if I've got any confusion if it's one or the other structure.

Steven:

And again, in terms of differentiation, Justin's asked how you differentiate labral tears against a Psoas bursitis, for example. And is it possible to see tears on ultrasound scans?

Vipin:

Going back to the first question, I use different tests and sometimes there is a crossover between the tests. So resistance straight leg raise may have positive. So maybe a labral tear and Iliopsoas issues going on for example. . So there may be some pain on resisted straight leg raise. Iliopsoas test may be painful with a labral tear, but also with Iliopsoas problems. So it's difficult to say, I look at the patient, put examination features together, and I look at the imaging as well - the x-rays and the MRI scan and see what the main problem is. And sometimes injections may be useful to try and decide

where Iliopsoas is the main problem and the labral tear is not a problem, for example, Ultrasound can be used and some people claim that they can use ultrasound to diagnose tears, but bear in mind, the hip is a deep structure .It may show inflammation around the outside of the hip joint . Showing inflammation within the hip joints, for example, fluid can be seen, but I'm not sure if synovitis can be seen, for example. I think ultrasound may be useful, but if there's any doubt, I'd get a three dimensional imaging say a high resolution MRI scan.

Steven:

And if I may ask one final question, lots of people apparently are asking about clicking hip. What makes them click and pop?

Vipin:

Clicking can be due to various reasons, so there can be intraarticular causes and extra articular causes. So, you could have a snapping hip that can cause a sensation of clicking, there can be labral tears, there can be Iliopsoas irritation. And more importantly, there could be a fragment of ligamentum teres or a loose body even in the joint that's catching. So there are lots of things that can cause clicking in the hip. And it's important just to again, take a history, examine and get imaging.

Steven:

Vipin. I'm always, I'm very, very grateful for people like yourself, serious specialists in subjects like this who are prepared to give up their time for us. And you've given us 15 minutes more than I asked for, which is very kind of you. And, and I've got a list of questions here, which goes on and on and on. I'm sorry to those people whose questions I wasn't able to ask, but I'm very, very grateful for your time. Thank you very much for joining us this evening or this afternoon.

Vipin:

Thank you very much.