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### Incidental Meniscal Findings on Knee MRI

A patient in your office describes the knee pain they have been feeling for an extended period of time. You ordered an MRI and it comes back showing a meniscal tear. Neurosurgery is telling us that these meniscal tears may be more common than we realize. Furthermore, is the meniscal tear really the source of your patient's knee pain? You are listening to ReachMD, The Channel for Medical Professionals.

Welcome to the Clinician's Roundtable. I am your host, Dr. Mark Nolan Hill, professor of surgery and practicing general surgeon and our guest is Dr. David Felson, professor of medicine and epidemiology at the Boston University School of Medicine and Public Health. Dr. Felson is the senior author of research published in the New England Journal of Medicine and the incidental meniscal findings, a knee MRI in middle-aged and older adults.

#### DR. MARK NOLAN HILL:

Welcome Dr. Felson.

#### DR. DAVID FELSON:

Thank you.

#### DR. MARK NOLAN HILL:

So, Dr. Felson, it appears that damaged meniscal cartilage may not be linked to knee pain. Tell us what your data is all about:

#### DR. DAVID FELSON:

In our study, we obtained MRIs on about 1000 persons in Framingham as cue sets a community based sample that had no more or less knee pain than the general population does. These folks were mostly aged 15 over and many of them turned out to have meniscal tears on their knee MRIs and of those, most had no knee symptoms, had no knee pain.

#### DR. MARK NOLAN HILL:

So, what does this mean?

**DR. DAVID FELSON:**

Well, it means that meniscal tears are very common incidental findings in the community and they don't necessarily relate to the presence of knee pain. They tend to be more common as we get older, especially men, older men, majority of older men, age 60 and over had meniscal tears on their MRIs and I am not sure that they are findings that we need to necessarily do anything about.

**DR. MARK NOLAN HILL:**

Well then let's say you have a patient, who has knee pain, and they have a meniscal tear, how can you differentiate that pain coming from the meniscus or from let's say osteoarthritis?

**DR. DAVID FELSON:**

There are primarily 2 different types of meniscal tears and we need to think about them using the patient's history as our clue. If the patient tells us that they had a recent acute injury including one that might have occurred with a twisting activity or where they were injured by someone else knocking into them and twisting their knee and their pain developed as a consequence of that injury right after the injury, then that sounds like a meniscal tear and if the MRI shows evidence of a tear present, then it is very likely that that tear and the pain and the injury are all related. On the other hand, most of the tears we saw have probably been there for months or years. The injury that might have initially precipitated those tears is long gone and not remembered and those tears probably are related to pain at all. So, there are 2 different types of people here. One is a person whom we can easily identify, who comes to our office with new-onset pain after a noticeable injury and has an MRI that shows a tear that is probably an acute one even in the context sometimes of mild osteoarthritis and then there is the another one who just has pain and has pain for a while, doesn't remember any particular type of injury, especially a twisting injury and whose x-ray and MRI show evidence of osteoarthritis and in the context of that osteoarthritis on the MRI, there is also a meniscal tear and that tear probably is not a source of pain and shouldn't necessarily trigger any particular type of treatment.

**DR. MARK NOLAN HILL:**

In a nontraumatic scenario, does a meniscal tear generate an inflammatory response?

**DR. DAVID FELSON:**

It does generate a small amount of inflammatory response based on information we have got. The synovium gets a little bit beefier when there is a meniscal tear there, but that is generally something that we see in acute tears. In osteoarthritis, there is a little bit of beefy synovium in most people and it isn't clear whether the meniscal tear that is also present in those people has anything to do with that beefier synovitis that is mild that might be occurring in those patients.

**DR. MARK NOLAN HILL:**

So, do you think that in the past perhaps too many meniscectomies or partial meniscectomies were performed?

**DR. DAVID FELSON:**

I do think that too many meniscectomies were performed just in these kinds of patients and patients who really had chronic meniscal tears in underlying joint environment where they have osteoarthritis and that removing part of the meniscus really does them no service and in fact, when you remove part of the meniscus, you change the biomechanics of the knee in a way that is often very unhealthy to the knee and can create more problems than existed before. So, it's really not indicated to do any kind of surgery in patients with chronic meniscal tears whose joints are affected by osteoarthritis.

**DR. MARK NOLAN HILL:**

Are the tears in it themselves different from the traumatic versus a nontraumatic situation?

**DR. DAVID FELSON:**

Sometimes, the tears look different. In young people who get tears, the tears on MRI and on surgery are very different in their location and in their orientation. In older people, there is often a tear that extends through a degenerated area of meniscus and those acute versus chronic tears are hard to tell the difference. They try to tell the difference on MRI between one and the other. The difference that is really best to sound by taking the careful history.

**DR. MARK NOLAN HILL:**

Well why wouldn't some of these tears that are asymptomatic, why wouldn't they hurt?

**DR. DAVID FELSON:**

Well, the meniscus is mostly avascular and aneural. So, there is no reason why a tear through the body of the meniscus would hurt anybody. If it releases a lot of detritus into the joint or <\_\_\_\_> that needs to be ingested by the synovium, I guess they could trigger a synovitis, but there is a lot of other similar other material floating around in an osteoarthritic joint that can trigger synovitis and it isn't clear that the meniscal tear is a major component of that.

**DR. MARK NOLAN HILL:**

Does it matter if the medial or lateral meniscus is involved or both?

**DR. DAVID FELSON:**

Well, tears in both menisci seem to be common as incidental findings, but they are more common in the medial side. The lateral side tends if anything to have more acute tears that cause problems, although acute tears are still more common in the medial side than the lateral side, we can see a lateral meniscal tear, it may more often reflect an acute injury problem.

**DR. MARK NOLAN HILL:**

If you have just joined us, you are listening to The Clinician's Roundtable on the ReachMD. I am your host, Dr. Mark Nolan Hill and our guest is Dr. David Felson, professor of medicine and epidemiology at the Boston University School of Medicine and Public Health. We are discussing incidental meniscal findings on knee MRI.

Dr. Felson, then what do we do with the patient who presents with knee pain and does not have a history of acute trauma?

**DR. DAVID FELSON:**

You don't assume that that knee pain is from their meniscal tear that you might see incidentally on their MRI and try to grapple with the underlying disorder that is causing them and that is causing the pain and usually in an older person that turns out to be osteoarthritis. So, it translates into a question of how do you treat the patient's osteoarthritis.

**DR. MARK NOLAN HILL:**

Well, let's go back, you mentioned MRI in the patient that doesn't have an acute trauma to the knee. Should we be getting MRIs as an early test or should this be delayed until we really have a diagnostic dilemma.

**DR. DAVID FELSON:**

Well, since there is nothing you are really going to find on that MRI that you would do anything about in the patient with chronic knee pain, there is really no reason to get an MRI in that patient. An x-ray sometimes is helpful to make sure that the process is osteoarthritis and that there is not something like a fracture present that would need to be treated differently.

**DR. MARK NOLAN HILL:**

So, do you think at this point, we might be decreasing the number of MRIs that we get as a knee jerk reaction upon intended in these patients?

**DR. DAVID FELSON:**

I would hope so. I am not sure what they are telling us that we are going to do anything about.

**DR. MARK NOLAN HILL:**

So, if you have a patient that has chronic knee pain and you do an MRI and you see some meniscal tears and the patient says well doctor my relatives all had partial meniscectomies or total meniscectomies or whatever, what would you tell that patient?

**DR. DAVID FELSON:**

I gently and carefully tell them that they may not need a meniscectomy or a partial meniscectomy or some kind of surgery that we need to try to manage this without operating on them to see if we can make them better.

**DR. MARK NOLAN HILL:**

Do you think that the small tears in the meniscus have any significance at all in the function of these patients or the pain and discomfort in their knee?

**DR. DAVID FELSON:**

I suspect they do have important consequences and that meniscal tears are likely to cause osteoarthritis to progress perhaps more rapidly than it might otherwise. Meniscal tears per se are not related to pain when they are chronic, but to the extent that they cause osteoarthritis to accelerate and osteoarthritis itself is painful, they may be a problem. So I am not sure that the story here is entirely over. We may have more exploration and appreciation for what meniscal tears are and what they do to the joint to learn.

**DR. MARK NOLAN HILL:**

What specifically would you like to have answered in terms of the future research?

**DR. DAVID FELSON:**

Well I think it would be helpful to know whether those tears that were seen incidentally that are painful cause such problems in the knee that we might need to evaluate doing something about them. Even though what we do about them may not be the same or with all the same rationale as what has been done in the past.

**DR. MARK NOLAN HILL:**

Do you ever advise arthroscopy as a diagnostic study in itself when MRI might not be conclusive?

**DR. DAVID FELSON:**

Sometimes, MRI is not 100% diagnostic of a meniscal tear in a patient with an acute trauma and in such circumstances I have advocated arthroscopy and sent my patients to our local arthroscopist for further investigation.

**DR. MARK NOLAN HILL:**

To someone who has a meniscal tear from trauma, can that ever be treated nonoperatively?

**DR. DAVID FELSON:**

Yes, it can. So, meniscal tears can occur in different parts of the meniscus in the outer edge of the meniscus, the outer fourth or so, is vascular and if the person is young, it's conceivable that that tear can heal on its own with partial weightbearing and perhaps no arthroscopic intervention. That's not been well studied, but it is certainly possible and I think we have all seen patients who had a meniscal tear, but seemed to have done well without surgery and I strongly suspect that those patients had some kind of gradual and spontaneous healing.

**DR. MARK NOLAN HILL:**

What would make you decide a patient comes to your office with a painful knee following trauma and the meniscal tear is found on MRI, what would make you determine whether they go to surgery or not go to surgery?

**DR. DAVID FELSON:**

Well, I tend to encourage patients to go to surgery if they have a meniscal tear following trauma. I think that the type of patient where I would be less forceful about it, are ones who have no mechanical symptoms. So, they are not locking, catching, or giving way in patients where the pain is relatively mild. So, they had an injury. I think it might have been a meniscal tear. Their pain is plus/minus. It is tolerable to them. They are able to do somethings and they are not having any trouble with their knees suddenly catching or locking in a way that suggest the meniscus is getting caught. In those types of patients, it would be very reasonable to have them just wait for a while, to have them avoid activities, which might be injurious, and to see if their pain gradually gets better.

**DR. MARK NOLAN HILL:**

If you have a patient who is very active and does have a degree of osteoarthritis and they have an injury indicated in MRI that shows meniscal tear, how can you be sure that the tear is not just an incidental finding and their pain is from the osteoarthritis?

**DR. DAVID FELSON:**

Well, in the context of osteoarthritis and without an acute injury history, I think you have to assume that the tear is probably just part of the osteoarthritis. Now on the MRI, tears don't all look the same and there are some that are really characteristic of the acute trauma and not necessarily of an osteoarthritic type tear and if one of those were present that might also be evidenced that this is a traumatic tear and needs an intervention that is not like my treatment of osteoarthritis. On the other hand, if it's in the context of a joint where the MRI really shows osteoarthritis and the tear is what's called the degenerative tear something that's an extension of a horizontal degeneration within the meniscus, then that really is more of a global picture of osteoarthritis where it's hard to make a case that the meniscal tear is causing its own problems.

**DR. MARK NOLAN HILL:**

We always think about traumatic tears occurring in football players or basketball players. What degree of trauma is necessary to cause a meniscal tear? Can it be minor trauma?

**DR. DAVID FELSON:**

Yes. So, the amount of trauma necessary is often minor, especially in an older joint where there is some laxity and the tear in one of my patients was she leaned over to pick up her phone and turned toward her bed and it was clear that that was the particular activity, which caused her tear. So, yes, mild activities especially torsional type activities, twisting activities can cause tears. I think in younger healthier knees, they often are consequence of much more major trauma.

**DR. MARK NOLAN HILL:**

And what is the integrity of the menisci when you get older, I mean do they just naturally degenerate?

**DR. DAVID FELSON:**

Osteoarthritis occurs both in the hyaline articular cartilage and in the fibrocartilage meniscus. They desiccate. They become easier to tear and there are horizontal substance changes, mucoïd changes within the meniscus that probably also make them more susceptible to tearing.

**DR. MARK NOLAN HILL:**

Is there any way that as we all age, we can protect our knee joints and our meniscus from damage from minor trauma?

**DR. DAVID FELSON:**

I know of no way we can do that and I think it's a wonderful question because if we did know of a way, we could prevent tears, which probably cause subsequent structural damage to the knee and may be a major cause of osteoarthritis.

**DR. MARK NOLAN HILL:**

I want to thank our guest, Dr. David Felson. We have been discussing incidental meniscal findings on knee MRI. I am Dr. Mark Nolan Hill and you have been listening to the Clinician's Roundtable on ReachMD, The Channel for Medical Professionals.

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