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Imaging Considerations in Diagnosing GCA

Announcer (Introduction):

You're listening to ReachMD. This episode of *Living Rheum*, titled "Imaging Considerations in Diagnosing in GCA" is sponsored by Novartis US Clinical Development and Medical Affairs. The host and speaker have been compensated for their time. This program is intended for health care professionals. Here's your host, Dr Anisha Dua.

Dr Dua:

The American College of Rheumatology, Vasculitis Foundation recently published recommendations for the management of giant cell arteritis.[20] They advise performing a temporal artery biopsy to make the diagnosis. But the European Alliance of Associations for Rheumatology, or EULAR, recommends using ultrasound.[21]

This is ReachMD, and I'm Dr Anisha Dua. Joining me to discuss imaging considerations in diagnosing GCA is Dr Mike Putman. Dr Putman is an Assistant Professor of Medicine at the Medical College of Wisconsin. Dr Putman, thanks so much for being here today to talk about this important topic.

Dr Putman:

Thanks for having me. I love controversies in management, so, pitting EULAR against ACR is – we're off to a great start.

Dr Dua:

I agree. So, with that, let's first talk about how ultrasound is used to diagnose GCA. What are some of the specific features we're looking for with ultrasound?

Dr Putman:

Yeah, that's a great question, and it really depends on who and where, for how it's used. So, this started quite a while back. There was a New England Journal paper from Wolfgang Schmidt, about using ultrasound to identify vascular inflammation of the temporal arteries, and the finding that he identified, and that we still use today, is one of the OMERACT response criteria for this, is a halo sign, which, looks sort of like a halo.[22] But the halo's created by a red dot in the middle of the vessel, which is pulsating, surrounded by a dark ring, and that ring is darker, and thicker, and less compressible than a normal temporal artery would be. And so that correlates to the vascular inflammation that we see on biopsy, and a smaller lumen correlates to intimal hyperplasia, that we would see on vascular biopsy.[23] And so, it's a very appealing modality, because you can see some of the same features, but you don't need to operate, or take the vessel out.

When I said, depends on who and where because, certainly abroad, and definitely a lot of European practitioners are doing more comprehensive ultrasound evaluations. Now, early on, we performed a big study where people were blinded – and, it's called the TABUL study.[16] It's actually a very interesting paper, and the performance characteristics of ultrasound were, kind of mediocre. It increases the chances of GCA by about 15%, if positive. But, one of the critiques of that was that the folks who did it weren't experts in the field, and they were only looking at these temporal arteries,[21] so a lot of folks will also look at the axillary arteries, and then, some will even go and do the carotids, and the vertebrals, and the occipitals, and all these tiny little arteries. And, as you do that, you tend to notice more your yield goes up, and the expertise also tends to go up as people spend more and more time looking at those arteries, so, the findings vary by who's doing it, and how many times, and how expert they are in the exam.[16]

Dr Dua:

Perfect. Thank you. So, I know you have a little bit of experience here, so, just thinking about ultrasounds, why do you think EULAR recommends the use of ultrasound? I know you mentioned you don't have to go in there and do the surgery, but they recommended it as the first-line diagnostic tool. Do you think there are any drawbacks to that? And tell me a little bit about your thoughts on it.

Dr Putman:

I kind of gave the TABUL data, which was sort of short on ultrasound, but more recently, there was a really cool paper in Lancet Rheumatology,[21] that looked at ultrasound, done by experts, and the positive likelihood ratios – which kind of affects how much it increases the chance of disease – were far more impressive, and pointed toward the modality that could really, in many cases, sort of clinch the diagnosis, or at least push you to a threshold where you would know to treat. And they did that, with a modality that was largely very accessible. So, especially abroad, but increasingly in the United States, people are doing fast track clinics.[22] So for me, when I meet a person with suspected GCA, I take their history, and then I do the ultrasound at the bedside, immediately. I show the patient exactly what I'm seeing, what I'm finding, and I think it really helps them understand the disease process.

And it's very accessible. It's right there, immediately. There's no delays while we wait.[22] Another benefit would be that you spare them a procedure, so there's no procedural complications. And then, you can keep the artery. So, if you don't take it out, it can be useful in the future, if people are flaring. But you asked about drawbacks as well. The drawbacks are that there's a huge learning curve to this.[22] I've done over 50 now, and I'm increasingly confident, but it takes a lot of practice, to really feel like you know what you're doing, and identify more subtle findings. And, I think that especially in the US context, where it's not clear how we're gonna train all 5000 rheumatologists to do this. There's a concern that rolling it out en masse would lead to maybe overconfidence, underdiagnosis, issues like that.

Dr Dua:

Given this information, what kind of role do you think ultrasound might play in Fast Track clinics?

How do you think it might help, in terms of risk stratification for patients?

Dr Putman:

Yeah. I think you said the critical word, which is risk stratification. The British Society for Rheumatology put out a really nice little guideline document,[24] and a flow chart, and even there where the folks there are quite confident of ultrasound, they say that for people who have a low pretest probability – so you really think this person doesn't have giant cell arteritis – a negative ultrasound would be quite useful. For people with a high pretest probability – so you really the patient does have giant cell arteritis – a positive ultrasound would be quite useful. And then there's all these people in the middle, where you shouldn't use ultrasound, in my opinion, to determine the diagnosis.

And so, that's kind of how I'm using it, where if it is parsimonious with a high or low clinical suspicion, then I think it's very helpful, and can save people biopsies, and unnecessary steroids. But in the middle, it's kind of like you said, a risk stratification, where you say, well, you're kind of in the middle, and now you have a positive ultrasound, so I think I'm gonna confirm that with a biopsy. Or, I'm gonna be more inclined to be giving steroids up front to that patient. And so, I think that using it as a way to inform subsequent testing, and to risk stratify people, is the best role for it right now.

Dr Dua:

Absolutely. I completely agree. So, we spoke a little bit about the role that ultrasound plays in diagnosing GCA, but let's shift over to some other imaging modalities that can evaluate large vessel involvement in GCA. So, can you tell me about how you're incorporating noninvasive imaging, kind of into your diagnostic algorithm, and what type are you using up front?

Dr Putman:

Yeah, I think that this is a very evolving part of the field. I credit the BSR guidelines for kind of an interesting algorithm. There's a really nice paper, by the Mayo group, where they looked at, if you have more suspected large vessel disease, instead of going this temporal artery route, you're going to go this large vessel imaging route.[4] And I do practice that myself. I mean, for people who have any signs of large vessel disease, I emphasize that, because what are you doing taking someone's temporal artery, if they have limb claudication and a loud vascular bruit. I mean, get the angiography.

Now, in the past, we did actual conventional angiography, and that's really not done today. So, I think there's 3 modalities that people need to know about. There's MR angiogram, CT angiogram, and then PET scans.[25] And each of them have their own little quirks, and

my rule is that whichever one you order, it'll definitely be the one your radiologist didn't want you to do. So, you should probably time travel, so you know what's correct.

But, as a general rule, CT angiogram is the quickest. It's a little bit better at looking at vessels and it may be marginally cheaper, but there's a contrast risk, and a allergy risk. MR angiogram has less of those risks, but it takes longer. It's a little harder for patients to sit through, and you can't use it at all in people who have bad kidney disease. And then, the CT scan – or PET CT – is really a fascinating modality, but there's some accessibility issues. It's quite hard to get one, and in an expeditious manner.[17,25–28] And then, you get a whole lot of stuff. I mean, you PET scan somebody and you see all kinds of things you're gonna have to figure out, and so, there's also the possibility of overdiagnosis with a PET CT, which I think can be quite challenging.

Dr Dua:

Yeah, absolutely. So, before we close, do you have any final thoughts or takeaways you wanna share with our audience?

Dr Putman:

You know, the first thing is really, I think that understanding your diagnostic modalities is really important. So, I love ultrasound. I think it has a very important role in giant cell arteritis diagnosis, and increasingly in management.

But you need to know the limitations of the study and know your own limitations if you're planning to do this yourself. I think that there's one thing we're not doing enough – it's recognizing large vessel involvement.[4] And, so, if you have not screened many of the patients you've seen recently for GCA for large vessel involvement, you're missing some. And so, I really encourage people to work on making sure that you're not missing these presentations, where people come in with some GCA features, but less cranial disease. Maybe their inflammatory markers are normal, but they have a lot of convincing vascular findings. You need to really be ready to think outside of the cranial box.

And lastly, for all of this, I just think there's a lot of value to knowing your colleagues, so, I was being kind of flippant about which imaging modality, but the truth is that a lot of departments are really good at something. And so, if your department's just an expert at MR angiogram, then maybe that's what you should be reaching for, and you can develop protocols. I mean, I've developed protocols with my group, where I have a specific order that I can use, to try and get the imaging slides that I need to see. And so, I think that working with your folks to make sure that you're giving the best care can be really helpful.

Dr Dua:

Yeah. Absolutely. And I think, of course, like you mentioned, comparing apples to apples, trying to stay consistent with what type of modality you're using so you can make better comparisons to make those decisions. I think you've touched on some of the most important points, in terms of diagnosing and using different imaging modalities.

There's no one perfect way to do it, and everything adds its own little piece of information or value. So, thank you, for that great discussion on GCA and imaging, and I wanna thank you, Dr Putman, for helping us better understand the role of imaging in diagnosing GCA. It was great talking with you today, as always, and I look forward to discussing how we can actually monitor these patients, after we've made a diagnosis, which is sometimes really the hardest part, so I look forward to that.

Dr Putman:

Oh, this is a lot of fun. Thank you for having me back. It's always good to get to chat, and think about controversies in imaging of giant cell arteritis. So, thanks for having me, and looking forward to talking again soon.

Announcer (Close):

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