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Can Hair Be Attacked by the Immune System?

Announcer:

Welcome to ReachMD.

This medical industry feature, titled "Can Hair Be Attacked by the Immune System?" is sponsored by Pfizer Medical Affairs.

Dr. Brett King:

Hello everyone and welcome to Alopecia Areata isn't just scalp deep - Clinical conversations. I'm Dr. Brett King, and I'm an associate professor of dermatology at the Yale School of Medicine. I specialize in inflammatory skin diseases, including alopecia areata and other forms of alopecia, too. This is a series, featuring discussions between me and other leaders in dermatology who specialize in alopecia areata or AA.

The objective of these is to raise awareness of AA as an autoimmune disease and enhance our understanding of the diagnosis and evaluation of AA. We also cover other important clinical considerations that impact patients, including the psychosocial burden of AA and managing AA in different populations.

This is episode one, called "Can Hair Be Attacked by the Immune System?" I am honored to have Dr. Jerry Shapiro, a world-renowned hair loss expert, with us today to share his experiences. In this episode, we will provide a brief overview of the different types of hair loss that we commonly see and the differential diagnosis of alopecia areata.

Dr. Shapiro, welcome. Can you start by telling us something about yourself, your background, and describe your clinical practice?

Dr. Jerry Shapiro:

Well, I'm a professor of dermatology at New York University, Grossman's School of Medicine. I received my medical degree from McGill University in Montreal, Canada, then went to the University of British Columbia, did my residency, and then I was invited by New York University to come and work as a director of the disorders of hair clinics that we have.

So, all I see right now are just hair cases, and I've been doing that for almost two decades where we just see hair loss patients and a lot of what I see is alopecia areata. That makes up a lot of my day.

Dr. Brett King:

Needless to say, Dr. Shapiro, you're a historic figure in dermatology, in particular, for hair loss. And so, you know, your experience is invaluable for all of us to hear. What are the most common types of hair loss that you encounter in adults?

Dr. Jerry Shapiro:

In adults I usually see a lot of pattern hair loss, genetic thinning, we call it androgenetic alopecia. We definitely see that both in men and in women. We also, of course, see lots of alopecia areata because my clinic is specialized in hair disorders.

So, we see some of the most difficult cases of alopecia areata, severe cases of alopecia areata. Then there's a condition called telogen effluvium that also can be difficult to diagnose. And so, we see just this massive shedding that we see in individuals that are not necessarily alopecia areata. And of course, we see scarring hair loss.

At least a third of my patients have this condition where you have permanent hair loss, where there's scarring that occurs and the stem

cells of the hair follicle are destroyed. Unlike alopecia areata, where the stem cells are still very much intact, and all one has to do is modify the immune system to allow the hair to grow.

Dr. Brett King:

Interesting points there, because there's obviously a broad spectrum, as you point out, a broad spectrum of hair loss. There's scarring alopecias, there's non-scarring alopecia.

And so, when you think about alopecia areata, how often, do you think, there's a differential diagnosis? How often is it perfectly clear? And how often do you need to be considerate of other possible explanations for somebody's hair loss?

Dr. Jerry Shapiro:

Sometimes it is very obvious, if somebody has a circular patch with the osteo or the holes or the pores that are seen. I mean, sometimes the diagnosis is, very easy, but many times it's not.

When there is a diffuse form or a multifocal form or sometimes it's hard to tell whether there's scarring versus non-scarring, we always look closely with the trichoscopy, with our special device that magnifies the scar. We look for those holes to make sure we're dealing with a non-scarring alopecia because the treatment for non-scarring versus scarring is totally different.

So, we also, you know, we do pull tests, there are all different ways of examining the patient to see how active the condition is but most of the time if somebody has limited disease that, you know, and it's round patches, it's not a problem.

However, frequently it is a problem when there's a more diffuse type of hair loss and it's hard to distinguish between, let's say, a diffuse form of alopecia areata or a form of telogen effluvium. And so, we may sometimes, not frequently, have to do a biopsy to help determine what the diagnosis is.

Dr. Brett King:

Yeah, I think that this is critically important and I really I try to, you know, communicate this and teach the residents this point. You know, we are not inadequate if we need to do a scalp biopsy. If you're unsure of the diagnosis, do a scalp biopsy, for the reason that you pointed out, right? There's scarring and non-scarring alopecias.

If we're wrong and we go down the path of assuming that somebody has a non-scarring alopecia such as alopecia areata but, indeed, they have lichen planopilaris, you know? As that disease progresses, we're losing time, we can't go back.

And so, I think it's really important for us to acknowledge that there's a differential diagnosis and to be comfortable not knowing the diagnosis all the time and relying on a biopsy to help us with that.

Moving on to the next part of our conversation, when patients present with hair loss, any kind of hair loss, they almost always want to learn what is happening to their hair and what is causing the hair loss, right? We know it can be very distressing. How do you explain the pathophysiology of alopecia areata and its autoimmune nature to patients?

Dr. Jerry Shapiro:

I tell them that the hair follicle has, normally, immune privilege. The immune system can't attack a normal hair follicle at all unless you have some kind of destruction or change in the immune privilege of the hair follicle.

And when, what causes the destruction, we don't really know. But we know that when that happens, when the immune privilege of the hair follicle is broken down, then a bunch of cytokines can come into the situation and cause all these lymphocytes to surround the hair follicle, the so-called swarm of bees, and they're all, there are different cytokines like alpha interferon or interleukin-15.

The hair follicle has different phases; there's anagen, which can last three to up to seven years, then there's catagen, which is like a regressive stage where a new hair follicle is gonna come from that, and then there's telogen, which is the resting phase.

So, it is the anagen follicles, the growing follicles, that are being affected in alopecia areata and prematurely being converted into a catagen-telogen follicle and fall out because of the loss of immune privilege.

And what causes that loss, we don't know. But we have tools to help bring down the immunologic reaction against the hair follicle and modify and change it so it's not attacked so much and the hair will regrow.

Fortunately, the immune privilege and all these things can be controlled, and the stem cells are not destroyed as in cicatricial alopecia.

But here the stem cells are very much alive. The inflammation is more at the base around the bulb of the hair follicle. So, it leaves those stem cells out. And so that's why alopecia areata is a reversible condition.

Dr. Brett King:

I think it's important to hear it's reversible so in our discussions with patients we can go very deep or we can stay superficial and every patient is going to kind of want a different level of explanation.

But the idea is there's immune privilege, typically, and that goes away in alopecia areata, but it is reversible. The hair follicles are not destroyed.

And then, again, some patients want more detail we can go into the you know, what we believe to be are the cytokines driving disease, interferon gamma, IL-15 and so all of that's very helpful to give context to how to answer the question. Again, we can do it very quickly or we can take a deep dive for the patient who wants that explanation.

Dr. Jerry Shapiro:

To make it very simple, just say it's an autoimmune disease, your immune system is attacking the hair follicle and it's like it's allergic to your own hair and it's making it come out. So, I try to make it as simple as possible for some..

Dr. Brett King:

No, no, no. But I think you kind of provided an answer that allows us to give truly the thirty-second answer or the three-minute answer, which, again, will be helpful for different kinds of patients.

Dr. Shapiro, thank you, again, for sharing your insights. You are a historic person in hair loss, and we owe a debt of gratitude to you for everything that you've done for hair loss in dermatology. To close this discussion, what are the highlights you want for listeners to take away from our discussion?

Dr. Jerry Shapiro:

The highlights are that there are different kinds of hair loss, there's scarring versus non-scarring, and that we, as dermatologists, need to differentiate between the two.. We should also know that there is a disruption of immune privilege that definitely causes the anagen hairs to kind of, which are being attacked, to go into catagen and telogen and then fall out.

So, it's an auto immune process.

Dr. Brett King

Thank you, thank you so much. And thank you to listeners for tuning in to this first episode in this series on alopecia areata. And please tune in to future episodes with other experts who will be providing insights and lessons that will help all of us when seeing patients with this disease.

Announcer:

This program was sponsored by Pfizer Medical Affairs. If you missed any part of this discussion, visit Reachmd.com/IndustryFeature. This is ReachMD. Be part of the knowledge.

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