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### Seeking Success in Scar Treatment

Dr. Krakowski:

Welcome to *Derm Consult* on ReachMD. I'm Dr. Andrew Krakowski from St. Luke's University Health Network in Bethlehem, Pennsylvania, and joining me today to discuss what's new with scars is Dr. David Ozog, C.S. Livingood Chair in Dermatology at Henry Ford Hospital in Detroit, Michigan. Dr. Ozog is also a fellowship-trained Mohs surgeon, Director of Cosmetic Dermatology, and an all-around great mentor and educator.

Dr. Ozog, thanks for being here today.

Dr. Ozog:

Dr. Krakowski, thank you for that wonderful introduction, and it is my pleasure.

Dr. Krakowski:

Well, we've both had some experience treating scars, and I think most of that experience is usually around 3 types of scars: atrophic scars, hypertrophic scars, and keloids. But one of the things that I always have the hardest time with is When does a scar need to be treated? And I'm interested in sort of gaining your perspective in terms of how you consider a scar that a patient might present to you with as being pathologic or just a normal scar.

Dr. Ozog:

That's really the crux of every condition that we treat: When is something pathological to the point where an intervention needs to occur? My answer for scars is no different than my answer for other conditions. It's when it reaches the point with the patient that it's affecting them in some demonstrative way. A few examples of that, we often treat scars based on symptomatology. If a patient's having pruritus or some pain associated with the scar, that's very clear-cut. Oftentimes they are psychologically distressed, and the more pathologic scars obviously are affecting mobility, so there's a continuum, and it's different for different individuals, as is the case with all conditions.

Dr. Krakowski:

In your clinic, what types of scars are you commonly treating?

Dr. Ozog:

Well, we're a little unique here. In Detroit, in Southeast Michigan, we have a large keloid population. Our residents also staff a scar clinic where we treat many scars pro bono, everything from acne scarring to trauma to burn scars, really the whole gamut, and we also, as most practices do, take care of patients who have had surgical scars.

Dr. Krakowski:

So you're really in a specialized scar treatment facility, if you will. What would you recommend for the "average dermatologist"? Someone walks into his or her practice with a hypertrophic scar that you can define however pathologically it may present, maybe with itch or redness or contracture. What are the 1 or 2 things that any clinician should be doing to treat that hypertrophic scar right there at the point of care?

Dr. Ozog:

Sure. Well, just a point of clarification, and I may be biased, but there are no average dermatologists. I feel like we're blessed with really a brilliant group of colleagues, many of whom are already doing the basic things that I think we'll cover, in that for symptomatic scarring, injection of various concentrations of Kenalog can be very effective. Many of us have now also shifted to using more fluorouracil compounded with triamcinolone to mitigate some of the adverse effects of telangiectasias and hypopigmentation, which are much less likely to occur with the apoptotic fluorouracil. For hypertrophic scars, many, many dermatologists have pulsed dye lasers in

their clinics for treatment of rosacea and telangiectasias, and Tina Alster described it back in 1992, I believe, in her *Lancet* article, which was pivotal, how effective pulsed dye laser as a monotherapy can be with erythematous and early hypertrophic scars. Those 2 things are really the mainstay of early hypertrophic scar treatment.

Dr. Krakowski:

How do you ramp it up from there? What are you commonly using in terms of interventions?

Dr. Ozog:

Yeah, so it depends on what your scar behavior is, so how thick it is, everything from nonablative lasers, the fractional lasers, to really fenestrate scars to the ablative lasers, such as CO2 and erbium YAG, so that's kind of the next step in this process. Is that similar to what you're doing at your practice?

Dr. Krakowski:

Yes, absolutely. Lasers—specifically the fractional ablative CO2 lasers—are our workhorse combined with pulsed dye laser for erythematous scars. We don't do much 5- fluorouracil. Do you have issues storing that in your clinic, or do you keep that in hospital space? How do you handle that?

Dr. Ozog:

Yeah, so that's an outstanding question. Academic centers have more of a challenge than private practices. We're more tightly regulated, so yes, even for mixing something that dermatologists have done for 40 years in their clinics, when it's done in an academic center, it has to be done under a hood, under specific conditions, and it's a bit cumbersome, but it's important enough, particularly for our patients who have had adverse effects from Kenalog and triamcinolone acetonide, that it's worth doing.

Dr. Krakowski:

For those just tuning in, you're listening to *Derm Consult* on ReachMD. I'm Dr. Andrew Krakowski, and today I'm speaking with Dr. David Ozog about what's new with scars.

Dr. Ozog, shifting gears a little bit from hypertrophic scars, how do you approach atrophic scars on the cheeks that may commonly be a consequence of an inflammatory skin disease, such as acne vulgaris, or any process that would leave you with an atrophic scar?

Dr. Ozog:

Yeah, acne scars are some of our favorite types of scars to treat, and as you're aware, there are different subtypes of acne scars. The easiest to treat and fortunately, one of the most common are the rolling acne scars, so those are the ones that if you were to stretch the patient's skin, it would appear that the scar had resolved because you haven't lost any tissue, and so these scars can be treated with devices. They can also be treated with subcision followed by devices. Subcision is our most common treatment for rolling acne-type scars, often followed with a nonablative device, such as a 15 fixed 50 fractional laser, very effective.

Dr. Krakowski:

Do you employ the CROSS technique at all for the treatment of atrophic scars, and if so, can you kind of walk us through that?

Dr. Ozog:

Absolutely. So the CROSS is an acronym. It stands for the chemical reconstruction of skin scars and was first described in an outstanding paper by a Korean group. And since that time there are hundreds and hundreds of iterations and publications of using the technique. Basically the scarification of the base of a scar to induce collagenesis, and we typically will use that as our treatment of choice for icepick scars. If a patient comes in regardless of skin type and you can't see the bottom of that scar—and these are typically smaller; they are anywhere from 1 to maybe at the most 2.5, 3 millimeters—those just have outstanding results with TCA in the bottom of those. Our technique—and there are many techniques out there in terms of application—is we use a 30-gauge, half-inch needle. We don't draw anything up. We actually touch the needle to a little bit of the trichloroacetic acid and then touch the bottom of the scar. And the acid is not inside the needle. It's actually on the outside. It's a wicking technique. And so the benefit here is we're putting very, very minute amounts, and we're able to focus it on the base of that scar and not have any of the overflow on to the rim, which can sometimes worsen the scar.

Dr. Krakowski:

Typically, what concentration of TCA would you be using for that?

Dr. Ozog:

Published literature is anywhere from 60–100%. I'm not sure if these concentrations make much of a difference as there is very little head-to-head data. We use 100% TCA, and it's very, very inexpensive. A vial of it lasts a long time, and it's pennies per treatment.

Dr. Krakowski:

Earlier you mentioned that your residents have been fortunate enough to serve in a free clinic that takes care of patients with keloid scars. How are those different specifically from other scars, and what's your approach there?

Dr. Ozog:

Yeah, keloids are very challenging, and in Southeast Michigan, we've treated several thousand keloid patients over the last several years, and they are very different than hypertrophic scars in that they are hamartomas. They are essentially collagen tumors, if you will, so the fibroblasts are turned on, and they are essentially just cranking out collagen. The pathology is very different. When you look at these under the microscope, the tumor is abutting the epidermis, which is effaced and flattened. You can kind of picture this in your mind's eye, this thing just pushing up on the epidermis, and things become very effaced.

The treatments are similar but not as effective. An early treatment algorithm is similar to hypertrophic scars in that we will use Kenalog with a combination of fluorouracil. The main difference and one of the most effective treatments is to pretreat the scar a few minutes earlier with a pulsed dye laser or very light cryotherapy. What this does is it induces a bit of edema that allows for much freer flowing of the Kenalog or 5-fluorouracil. This has been a gamechanger for us over the last several years. And once this is done for the first, second or third treatment, the entire scar becomes softer, and those subsequent treatments are much, much easier for the patient. In fact, we've treated at least 100 patients who have failed other injections with DermaJets or other techniques just by mechanically softening either with the laser, as I mentioned, or a little bit of light cryotherapy.

Dr. Krakowski:

Well, you obviously have your finger on the pulse of what's going on in the scar treatment community. What can you speak to in terms of any adjuvants to treatment or scar mitigation—dare I say scar prevention—that you see emerging on the distant horizon?

Dr. Ozog:

Great question. The future is bright for scar prevention. Some of the things that we've talked about already, use of lasers and use of cortisone, use of 5-fluorouracil, are all being looked at in terms of scar prevention being done earlier. Years ago, we published with Ron Moy out in California. Dr. Moy is a pioneer of many dermatologic procedures and is kind of a leader in surgery and in cosmetics, and he, along with others, noticed that if you treat a scar early on with anything or a wound early on with anything from dermabrasion to laser, that it actually changes the trajectory of that wound. And we've studied this by treating the edges of Mohs surgery sites immediately after putting deep sutures in, and if you did split scar studies, 100% of the scars did better with some treatment of the edges. So this type of early intervention is also important for burn scars. Lasers are being used earlier. There are some small molecules that are under investigation right now that have some promise. There are also studies looking at botulinum toxin for possible scar prevention or mitigation. So lots of exciting things, and I'm very, very excited about what we're going to be able to offer our patients in a few years.

Dr. Krakowski:

It certainly is an amazing time for both the patients with the scars and the clinicians who are interested in treating them. Well, that's all the time we have for today, and I'd like to thank Dr. David Ozog for joining me to discuss what's new with scars. Dr. Ozog, it was great speaking with you today.

Dr. Ozog:

It was my pleasure. Thank you.

Dr. Krakowski:

For ReachMD, I'm Dr. Andrew Krakowski of St. Luke's University Health Network in Bethlehem, Pennsylvania. To access this episode and others from *DermConsult*, visit [ReachMD.com/DermConsult](https://ReachMD.com/DermConsult) where you can Be Part of the Knowledge. Thanks for listening.