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Advances in Aesthetic Medicine: PLLA Technique Demonstration

Announcer:

Welcome to CME on ReachMD. This activity, entitled "Advances in Aesthetic Medicine: PLLA Technique Demonstration" is the audio portion of a demonstration video. This activity is provided by Prova Education and is supported by an independent educational grant from Galderma.

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Dr. Bloom:

This is CME on ReachMD. I'm Dr. Jason Bloom, a facial plastic surgeon outside of the Philadelphia, Pennsylvania area, and I'm here with my patient Sue. So we're here to demonstrate proper patient selection, also to understand the skin-boosting or biostimulatory therapies in order to provide her a natural, glowing look to her skin and face.

So, the ideal candidates for this procedure are patients who are in their mid-30s all the way up to 70 who have lost some volume in some areas of their face, be it the temple area, the midface, the submalar area or in this prejowl area, along the jawline, or in this preauricular or in front of the ear area.

Some of the goals or the benefits of the skin-boosting or biostimulatory products are really to improve the elasticity and the hydration of the skin, to decrease skin roughness, and also to improve skin thickness and firmness. So there are a few different modalities in order to skin boost or provide biostimulation or collagen production to the skin. One would be through hyaluronic acid products. The best kind of hyaluronic acid products are those with small particles that can get into the dermis of the skin and allow the collagen to be produced by stretching a fibroblast, which is the collagen-producing cell. Another way to provide biostimulation or skin boosting in the dermis or the skin is through products like PLLA, or poly-L-lactic acid. What these products do is create a low-level inflammatory reaction to stimulate collagen by irritating or stimulating a fibroblast, which is the collagen-producing cell.

While small-particle hyaluronic acid products are really good at boosting skin quality, they aren't providing the same volume that some of the other biostimulatory products like poly-L-lactic acid, or PLLA, provide. For our patient here, she not only needs some improvement in the skin, but she could use some volume in areas where she's lost it, like the temples, the midface and the submalar areas. This provides not only skin quality and texture enhancement but also a natural-looking volumization. This 2D mechanism of action video will help to describe the way that poly-L-lactic acid produces collagen and really works to enhance the skin.

As we age, our skin becomes more fragile, less elastic, and loses volume. This creates pronounced lines and crevices in the skin. These depressions in the skin are caused primarily by collagen fiber degradation, collagen insufficiency, and fat layer atrophy. One option to improve these lines is with the use of poly-L-lactic acid, or PLLA, which should be injected in the deep dermis or dermal-subcutaneous junction in a grid pattern with a cross-hatch injection technique.

The injected product volume immediately begins to fill the depressed areas and creates a temporary smoothing out of the skin. The injection sites should be massaged to allow for an even distribution of the injected product.

The PLLA micro components are hydrolyzed into lactic acid monomers, inducing a localized sub-clinical inflammatory response that recruits fibroblasts, monocytes, and macrophages. Over the next few days, two events will occur. First, there is a temporary return of the baseline depression of the skin due to volume absorption and a reduction in swelling.

Second, microspheres are created as the lactic acid is metabolized, and this leads to local fibroblasts increasing collagen production and deposition.

This results in dermal fibroplasia with sustained, increased dermal thickness and sustained improvement and smoothing out of unwanted lines and contours in the skin.

So the first area that we're going to treat on our patient here is the temple areas. The temples are a great area to enhance because as we age we lose some volume in this area. You can see on this patient here that she has just lost some volume, a little bit in this temple area. And if you would bite down on your back teeth for us—good—you can see the temporalis muscle pop out. This is the temporal fusion line, and the area that we're going to try to improve is right here over the lateral aspect of the brow and in the temporal fossa.

In order to prepare the skin, the patient is usually prepped with alcohol, and then I use a chlorhexidine wipe in order to wipe down the area that I'm going to be injecting. I use a 25-gauge needle. I will find an area by stretching the skin that you can see that doesn't have a vein that's sticking out. I'll ask the patient to bite down on your back teeth for me, and that helps to pop out the temporalis muscle. And you can relax. I'll start from down low. And relax. I will just gently touch the periosteum, and I will aspirate to make sure that we're not in a blood vessel. And it's just a gentle administration of the fluid. I'm really aiming for that temporal fusion line. Again, I will touch the periosteum, aspirate, and again slowly administer the product. And then one last area, I come back; I change directions hitting the periosteum, aspirating and finishing there.

And then finally getting that area over the tail of the brow, repositioning, touching periosteum, aspirating and slowly injecting. It's that slow injection that allows you also to be safe.

After we've completed the temple area, we're going to move down to the midface cheek area as well as this submalar or underneath the cheekbone area. The first thing I like to do is to use a little bit of 1% lidocaine with epinephrine in order to inject the areas that we're going to use a cannula. Now, this is different than where we treated the temples with a 25-gauge needle. I like to treat the cheek or malar areas as well as the submalar area with a 25-gauge, 2-inch cannula. A cannula is a blunt needle that allows us to safely and effectively put the product into the areas that we want to use it.

So, in order to use a cannula for the area, I use a 23-gauge needle just to break the skin in the areas that we're going to do the treatments. At this point we take the cannula... When we're injecting the midface, there are both superficial and deep fat pads to the midface. I like to pick up the superficial fat pads, find the port or entry area and push perpendicularly to the area where I made the entrance. I then aspirated. I'm going to, again, push perpendicularly and apply pressure. So, then we pick up the superficial fat pads, and now we're injecting over the cheekbone with some of the product, and this is deeply over the zygoma, or the cheekbone—a little bit of aspiration and apply the product.

Once we've treated the patient's cheeks or midface area, we're then going to focus underneath that, or the submalar area. Again, I take the 23-gauge needle and I make a small entrance into the skin. Whereas the cheeks are injected at a deeper level, to the level of the deep fat pads, the submalar area is really at a subcutaneous or just right underneath the skin level. Again, I'm pinching, I'm advancing the cannula against my fingers, and then I'm injecting in this retrograde manner. I'm pinching, injecting in a retrograde manner. Again, pinch perpendicularly, advancing the cannula. This is just subcutaneous the entire time. I'm radially crosshatching and laying down the product as we go through this submalar or cheek, below-the-cheek area.

Once we reach the level of the chin and jawline, I'm going to pick up the tissue and aim down underneath the muscle along the chin. Additionally, I'm going to flip the cannula around until it releases, and now I'm going to inject more superficially and subcutaneously along the patient's jawline. Because the facial artery crosses over the jawline in front of the masseter, you don't want to be deep or on the bone at this level. Anterior along the jawline you can be on the bone, but posterior you don't want to be deep. You want to be in a more superficial level at that point.

I'm now going to treat this preauricular area, again with a small, 23-gauge needle, and then I'm going to take the 25-gauge cannula and inject it again in a subcutaneous plane. It helps to pinch and push against where you're injecting, and we're just providing a little bit of support in front of the ear in that preauricular area. And you can even bring it up even a little bit higher into the hairline here. You can see I'm just kind of radially fanning and injecting in a crosshatch pattern.

This now completes the end of our facial injections. You can see that the patient isn't really bruised up. She has small areas of white, and that's just from where the lidocaine with epinephrine is working, but we'll demonstrate our posttreatment protocol with the patient.

Once the procedure is complete, we do like to demonstrate our postprocedure instructions to the patients. We take a little bit of arnica gel and now apply that to the areas that we're going to be having the patient massage. So these are the areas that we injected: the temples on each side, the cheek, the submalar areas as well as along the jawline and in the preauricular areas. And we tell the patient to massage 5/5/5, and what that means is the patient should massage approximately 5 times a day for 5 minutes each time for 5 days. So, what that does is it helps the products integrate and stimulate collagen after we injected it. So, after we've shown the patients how they're going to massage, we then provide ice packs to the patient to help reduce the swelling. I'll then see the patients back at approximately 4–10 weeks in order to receive their second treatment of PLLA.

So now we're going to talk a little bit about reconstituting or mixing up of the poly-L-lactic acid product. The company actually recommends to mix it up at least 24 hours in advance. Me, in my office, I like to mix it up 72 hours or more in advance, and what that does is allows adequate hydration in order for me to use the product.

poly-L-lactic acid is actually a powder. As you can see here, what we need to do is apply water, and in some cases an anesthetic, in order to mix the product up for injection. What I like to use is 2% lidocaine. While this is off-label for the injection or mixing up of the product, I think adding a little bit of lidocaine, whether it's 1% or 2%, allows for a more comfortable experience for the patients. I don't recommend using any lidocaine with epinephrine, because if you have blanching during the injection process, it could be a herald for intravascular injection.

Next, I like to mix my product up with bacteriostatic water. On-label for the reconstitution process is actually sterile water for injection, but using bacteriostatic water really allows us to keep the product on the shelf for longer without any issues.

It's important to utilize at least an 8cc dilution or reconstitution volume for each vial. On-label is actually a 5cc reconstitution vial, but we're looking at, for the face, somewhere in the order of 8–11cc for injection. I like to use 3cc of the 2% lidocaine and 6cc of the bacteriostatic water for a total of a 9cc reconstitution volume per vial.

Next, we're going to show you how I actually reconstitute the vials. At this point we're going to use the 6cc of the bacteriostatic water and instill it into the product. Next, we're going to add the 3cc of the 2% plain lidocaine into the vial. This brings us to a 9cc total reconstitution volume. Once the product has all the appropriate fluid mixed, I like to vortex the product, and what this does is allows it to appropriately mix the product before I put it on the shelf.

Announcer:

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