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Using HA Fillers CPD: Part Two

Dr Souphiyeh Samizadeh explores the different technologies of dermal fillers

Special Feature: Mid-facial Thread Lifting

Practitioners explain their best tips for a successful mid-face lift

Jawline Sculpting Using Filler

Dr David Ong presents his technique for shaping the jawline

The Unhappy Patient

Dr Qian Xu details how new practitioners can avoid unhappy patients



Hand Rejuvenation Using Laser

Skin laser specialist Dr David Goldberg introduces treatments for ageing skin on the hands and presents a case study of successful rejuvenation using laser

The process of all skin ageing relates to both intrinsic and extrinsic factors. Intrinsic ageing is due to genetic background, while extrinsic ageing is caused by a whole host of factors, the most important of which is ultraviolet exposure.¹ Thus, the best way to lessen extrinsic skin ageing is to use sunscreens from early childhood. Unfortunately, approximately 90% of our ultraviolet damage is completed by age 20 and is not reversible.² This DNA-induced damage manifests itself years later in a variety of forms. These include thinned skin, wrinkles and abnormal pigmentation. The skin on the hands is one of the most exposed areas of the body, and often patients do not think to apply sunscreen in this area so damage can be obvious. This prompts many patients to seek treatment to reduce the signs of ageing on the hands.

Approaches to ageing skin on hands

There are a wide variety of approaches to rejuvenate the hand, all of which depend on the problem. This ranges from dermal filler injections to skincare, chemical peels, lasers and more.

Thinning skin

Aged, sun-damaged, thinning skin will need replenishment.³ Generally, dermal fillers are used to accomplish this, while also making the overall skin look and feel healthier. The categories of fillers that promote collagen, elastin and proteoglycans include those made of hyaluronic acid, poly-L-lactic acid, calcium hydroxyapatite and PMMA beads. Although all categories can fill and lead to formation of collagen, the last three groups are generally best at this.³

A recent study suggested that calcium hydroxyapatite has an

ability to elevate elastin levels and to substantially increase proteoglycan formation. Therefore, fillers can 'fill' thinned skin, but also make overall skin look and feel healthier.³

In addition to fillers, a variety of topical products can also increase skin collagen formation. These include products with vitamin A analogues (retinols), growth factors, antioxidants and a variety of other agents that either leads to or provides a support structure for the formation of new collagen.⁴

Wrinkles

Wrinkles can also be treated with the above approaches, but often more is needed to achieve best results. Like the face, there are a variety of lasers and radiofrequency devices that can be used to treat wrinkles on the hands.

When performed safely and correctly, laser treatment can improve wrinkles with low downtime and with a low risk of scarring, as well as without post-treatment induced pigmentary changes. Such devices are categorised as non-ablative and ablative devices. In general, non-ablative devices require more treatment sessions and have minimal to no downtime, while ablative fractional devices require fewer treatment sessions, but do have more associated downtime than their non-ablative fractional counterparts.⁵

Abnormal pigmentation

There is a wide variety of sun-induced pigmentary changes ranging from melasma to diffuse hyperpigmentation. The most common form is called solar lentigines, also known as age spots or liver spots, although, they have nothing to do with age or liver-related issues. Solar lentigines are the direct result of excess sun exposure and can be seen on any sun-exposed area; however, patients most commonly present for treatment for lentigines on either the face or the tops of hands.⁶ A wide variety of methods have been used to lighten these brown spots. These include bleaching agents, peeling agents, non-specific destructive approaches and energy-based devices.

Peeling agents

Peeling agents can improve lentigines, however mild agents do not usually produce significant results. Strong acid peeling agents can be highly effective, but carry similar risks to the aforementioned full field ablative lasers.⁷⁻⁹

Destructive modalities

Lentigines can easily be removed by non-specific destructive modalities such as hyfrecator and cryotherapy. Both can be used to destroy the involved skin and lentigines. However, because of their destructive nature they are associated with a significant risk of scarring and pigmentary changes.¹⁰

Energy-based devices

Broad-based light sources, known as intense pulsed light sources (IPL), are much more selective than the above approaches. As their emitted light is well absorbed by lentigines containing melanin, IPL can be effective in lightening lentigines. However, a series of multiple treatments is usually required and generally the results are



Case study

A 65-year-old female patient came to me with extensive pigmentation (solar lentigines) across her hands and was seeking a solution. She had previously treated her solar lentigines for almost an entire year using prescribed hydroquinone bleaching creams, without success. She wanted improvement with a single treatment, minimal discomfort and quick healing.

We reviewed the possibility of approaches including other bleaching creams, destructive modalities, light sources and lasers. We decided that laser treatment would be the best option for this patient because it could achieve her aforementioned goals. I chose to use the Lumenis PiQo4 laser. This laser can produce four different colours of light (532 nm – green; 650 nm – red; 585 nm – yellow; and 1064 nm – infrared). It produces both nanosecond and picosecond pulses and is a high-powered device, with varying spot sizes that range from 2-15mm.¹³ For treatment of solar lentigines, very low energies are required, leading to minimal wounding, minimal discomfort and fast healing.

I explained to her that healing on the hands may take one week longer than on the face. I also said that she will continue to get newer spots in the area after the treatment because of her extensive sun exposure throughout her life, even if she were to apply a high SPF regularly thereafter.

I also said that she will possibly require two treatments using this laser, which in retrospect she did not need. I also discussed the benefits of PiQo4 compared to other technologies as, in my experience, it results in less discomfort, quicker healing and better results than other modalities. The PiQo4 laser provided a fast and effective treatment solution. A low energy was used so there was almost no discomfort with treatment and healing occurred within one week. The results were seen one month later when the patient came back into clinic for a review. As the results were better than expected, we decided that the patient did not require a second treatment. She had total clearance of her lentigines. I recommended that she continue to use sunscreens with SPF 30 or higher on the area to help maintain the results and to prevent further skin damage. However, I also made sure that she understood the periodic need for more treatments for new spots as they arise.



Figure 1: A 65-year-old female patient presenting with extensive pigmentation (solar lentigines) across her hands before treatment and one month after treatment using the Lumenis PiQo4 laser.

not as good as pigment-specific lasers.¹¹

Q-switched or nanosecond lasers can be used for the specific goal of lessening pigment. Such lasers are generically known as ruby, alexandrite and Nd:YAG lasers. Although such devices produce much better results than all the prior non-light based methods, their use is associated with significant discomfort and longer healing time than the newer picosecond lasers. Because nanosecond pulses produce both photothermal and photoacoustic wounds, there is usually more of a wound, and associated downtime, than that induced by the newer purely photoacoustic picosecond lasers.¹²

Bleaching agents

It is important for practitioners to note that as bleaching creams include both hydroquinone and non-hydroquinone variations they are helpful for the treatment of melasma, but they are notoriously unsuccessful in the lightening of solar lentigines.¹²

Conclusion

There are many approaches to rejuvenating the hands, depending on whether the patient has thinned skin, wrinkles or abnormal pigmentation. I have found that laser represents an ideal treatment for solar lentigines, in addition to its use on other forms of pigmentation as well as scars.

Disclosure: Dr Goldberg has received a research grant from Lumenis.



Dr David Goldberg is recognised nationally and internationally for his work with skin lasers, cosmetic dermatology and facial rejuvenation techniques. Since 1985, he has treated patients and taught doctors throughout the world in the use of these technologies.

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