



By Inga Hansen

Acne, surgery and traumatic injury can leave scars on both the skin and psyches of your patients. Traditionally, the most viable options for reducing the appearance of scars have centered on surgically re-injuring the skin in hopes of creating smaller and less noticeable scars. Now noninvasive technologies are offering effective options for scar reduction and ramping up results for time-tested surgical procedures. Lasers and volume fillers are offering new opportunities for noninvasive scar revision, and physicians are finding that they can use a combination of these tools to address each patient's individual needs.

# Erasing the Mark

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### Atrophic Scars

After struggling through years of inflammatory and cystic acne, many individuals are left with scars that typically fall into one of three categories: ice pick scars, box car scars and rolling scars. Resurfacing with CO<sub>2</sub> and erbium lasers offers an overall improvement in skin texture but means that patients run the risk of additional scarring and hyperpigmentation. Today fractionated lasers, including new fractzzional CO<sub>2</sub> and erbium systems, are offering similar skin smoothing results with little to no risk.

“Using a combination of techniques to address a scar’s characteristics can significantly improve results.”

“On average, we’re seeing a 50% improvement with the Fraxel (Reliant Technologies), which is comparable to the results we see with CO<sub>2</sub> and erbium resurfacing,” says Richard Fitzpatrick, MD, La Jolla Cosmetic Surgery Center, La Jolla, California. “The difference between those who respond in a single session versus those who respond after several treatments is their personal capability to make new collagen.” Dr. Fitzpatrick offers anywhere from one to seven sessions spaced one month apart. He recently added a fractional CO<sub>2</sub> system for “patients with deeper, more visible scars who aren’t responding as well as I’d like to the Fraxel,” he says. “And they’ve done tremendously well.”

Elizabeth K. Hale, MD, of the Laser & Skin Surgery Center, New York, treated 15 patients with atrophic acne scarring with a fractional CO<sub>2</sub> laser. Each patient received three treatments. “The improvement was significant, in the range of 50% to 75%, with zero incidences of long-term discoloration or scarring,” she says.

While the results of the fractional laser systems on their own are promising, many

physicians find that identifying each type of scar and using a combination of techniques to address its unique characteristics can significantly improve results.

**Ice pick scars** are deep and pronounced. “They appear as a deep hole in the skin,” says Niels Krejci, MD, Boston University School of Medicine Center for Cosmetic and Laser Surgery, Boston. “The scar looks like an ice pick hit the face and took a piece of skin out.” According to Dr. Krejci, punch excision remains the most effective treatment option for ice pick scars.

Treating the deepest ice pick scars with a TCA cross or punch excision prior to fractional laser resurfacing can improve overall results. “If you have a deeply delineated scar, it’s a big job for the body’s healing mechanisms to break down the collagen and reform the entire area,” says Fitzpatrick. “Punch excision allows you to take out the deepest areas of scar tissue and then work with the laser on the new scar you’ve created for a much higher probability of success.” Fitzpatrick waits two to four weeks for the new wounds to heal before going over the skin with the laser.

Another tool used to reduce the appearance of ice pick scars is dermabrasion. “Lasers tighten the skin and help the body lay down new collagen, which pushes out some of the depressed scarring,” says Edwin Williams, MD, Williams Center of Excellence,



“We use a small punch that’s a little bit larger than the scar we want to remove, and take the piece of skin out,” he says. “We’re left with a very small, very clean, round surgical defect. In some cases, it’s so small we can leave it to heal on its own or we may use one suture to close the wound. These heal very nicely.”

In some cases Dr. Krejci uses the TCA cross technique—placing a small dot of trichloroacetic acid in the center of the depression. “The high acid concentration digests the tissue. As the body cleans up the wound, it heals flat,” he says.

Latham, New York. “But if you look at the ice pick scars at an angle, they have very rough edges.” Dr. Williams uses dermabrasion in combination with laser resurfacing to smooth the rough edges of the scars, which reduces the shadows that make these scars so visible. “This creates the illusion that the scar is reduced,” he says.

**Box car scars** are larger depressions than ice pick scars. They’re characterized by steep borders and a horizontal floor. “They look a little bit like a swimming pool,” says Dr. Krejci. “If they’re very small, you can use a

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punch excision.” For larger box car scars, Dr. Krejci injects a dermal filler directly beneath the area to fill out the depression and create a smooth appearance. “This is temporary, lasting from three to nine months,” he says.

More permanent options include subcision, a procedure where a tiny needle with a scalpel on the end, known as a Nokor Admix Needle (Becton-Dickinson), is passed under the scar. “We then cut the fibers under the scar that are pulling the skin down,” says Dr. Krejci. “With subcision, you make incremental gains so you will need to do it several times. Anywhere from three to five subcisions spaced six weeks apart will offer good results.”

Dr. Williams combines subcision with fat transfer. After needling a scar, he fills it from below to “reinflate the depressed tissue,” he says.

**Rolling scars** are the third and most diffuse type of acne scarring. A study published in *Dermatologic Surgery* (March 2005) showed that subcision offers permanent, long-term improvement of rolling scars. Dr. Murad Alam and colleagues noted that subcision offered approximately 50% improvement and “when complete resolution of such scars does not occur, combining subcision with other scar revision procedures or repeat subcision may be beneficial.”

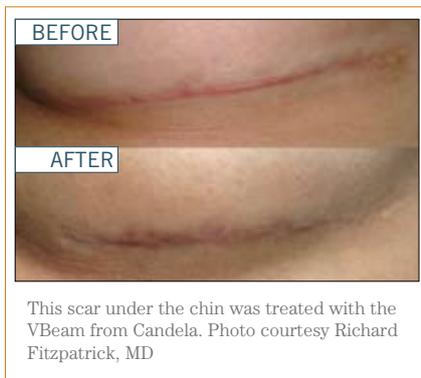
Dr. Krejci uses punch excision for ice pick scars and then combines subcision with the Fraxel for both box car and rolling scars. “I do the subcision first and then refer the patients to my colleague who performs the Fraxel laser treatments to improve the results of the subcision,” he says.

### Hypopigmented Scars

In the case of surgical and traumatic scars there are two elements that tend to make them stand out—a raised surface area and hypopigmentation. In the past, there were few options to help blend this discoloration. Today fractional resurfacing is changing that. “Be-

cause lasers like the Fraxel stimulate the epidermal cells in small columns, they offer the potential to spread new pigment in a step-wise fashion across a scar,” says Dr. Fitzpatrick.

Dr. Hale has been studying the effects of the 1550nm Fraxel laser, which received FDA clearance for the treatment of acne and surgical scars in 2006, on hypopigmented scars. “We’re seeing definite improvement with regard to the stark contrast between the hypopigmented scar and the surrounding skin. It’s not complete eradication but it is visible improvement on the order of about 50%, which makes the scar sig-



nificantly less noticeable.” Dr. Hale adds that optimal improvement can take quite a few sessions; her patients typically undergo between three and five sessions spaced three to four weeks apart.

### LASER SCAR REDUCTION FOR DARKER SKIN TONES

Resurfacing lasers are offering new means to combat acne scarring. Unfortunately, they’re largely limited to skin types IV and lower as a result of pigmentation concerns. But new opportunities for patients with skin types V and VI may be on the horizon. Dina Strachan, MD, a Manhattan-based dermatologist has been working with Radiancy’s Whisper NG Er:YAG laser to develop new protocols for darker skin types seeking improvement of atrophic acne scarring. Dr. Strachan, who generally chooses peels to reduce atrophic acne scarring in darker skin types, became interested in the Whisper “because it’s not quite as powerful as other resurfacing lasers I’ve tried,” she says. “I had some patients with deeper, more severe atrophic scarring who weren’t responding as well as I’d hoped to the peels.” To reduce the risks of postinflammatory hyperpigmentation, Dr. Strachan preps patients’ skin with Triluma for three weeks prior to each laser treatment. Following the procedure, patients experience three to five days of downtime. Subsequent treatments are spaced at least one month apart to allow the skin to heal and be prepped for the next session. “The total number of sessions depends on the patient’s skin condition and expectations,” says Dr. Strachan. “Following the first treatment I’ve seen about 20% improvement in scarring. The results continue to improve with subsequent treatments.”

### Hypertrophic Scars

When looking at raised or hypertrophic scars, you’re likely to encounter two scenarios—well-healed, raised scars that stay within the original area of injury and keloid scars, which continue to grow beyond the area of injury.

“Some patients, particularly African-Americans, are more likely to develop keloids,” says Dr. Krejci. “There are also specific areas of the body—the chest, shoulders and earlobes—where keloids are more likely to develop.”

Dr. Hale treats small keloids with a pulsed dye laser, “but when they’re large, excision and intralesional injections remain the most effective treatment,” she says.

Dr. Fitzpatrick, who has studied the effectiveness of the VBeam (Candela) laser on keloids, finds a combination of the pulsed dye laser and injections of intralesional 5-fluorouracil (5-FU) to be the best treatment strategy. “The key in treating keloids is early intervention,” he says. “The intralesional 5-FU and VBeam will take away the redness, and flatten and soften the scar in about three to four monthly treatments.”

Dr. Krejci uses surgical scar revision to remove small- to medium-size keloids, “but you need to see the patient every three to four weeks to make sure the scar isn’t starting to rise again,” he

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says. "If it does, we immediately inject the area with Kenalog (triamcinolone, Bristol-Myers) to break down the collagen." If the keloid is too large to excise, "we use only the injections to make the scar smaller and softer," says Dr. Krejci.

Treatment for raised scars that are static in growth is often dictated by the size and location of the scars themselves. Scars that are pulling on areas like eyelids and traumatic scars that are large and wide generally require surgical revision to create the desired results. "Trying to treat a wide, raised scar without excision is like putting out a forest fire with a hose," says Dr. Williams. He surgically removes old traumatic scars and then treats the area with a fractional laser four to six weeks after surgery. "When you bring the wound edges together after a surgical incision, there's usually a little bump; the resurfacing laser can smooth out that bump," he says. "Using these two techniques together is better than just cutting out the old scar and certainly better than using a laser alone."

For clean, well-healed surgical scars, the skin tightening action of fractional lasers can help smooth small, raised areas and even improve healing when used postoperatively. Dr. Hale treats skin cancer incisions and face-lift incisions with either the Fraxel or fractional CO<sub>2</sub> system starting two to four weeks after surgery. "It improves both the texture and pigmentation of the area," she says. "We're seeing amazing results."



Richard Fitzpatrick, MD treated this extensive scarring with the VBeam and the Fraxel.



Microneedling using a device like the Dermaroller (distributed by Grace Medical Equipment) shown here is a fairly new scar revision technique.

Dr. Fitzpatrick treats his skin cancer surgery patients with the 595nm pulsed dye VBeam laser starting one month after surgery. "We do two to three treatments on all scars, and it does make the scars less visible as they heal," he says.

A fairly new scar revision technique used for both atrophic acne and surgical scars is microneedling. In microneedling, a pronged roller is used to stimulate collagen production and tighten skin similar to the action of resurfacing lasers. It's the technique of choice for Alexander Sinclair, MD, plastic surgeon, Beverly Hills, California, when his patients fail to respond to laser treatments. "I start with noninvasive laser treatments and then I move to needling, which I find superior to dermabrasion and chemical abrasion," he says. "It requires only one treatment following the application of topical vitamins A and C. Within five days the patient will begin to see results."

With a growing number of scar revision techniques at your disposal, you can help your clients achieve the best possible outcomes by familiarizing yourself with all the options, and by staying open to the idea of referrals. "Scars often require a combination of treatments," explains Dr. Krejci. "If you're not able to provide the full spectrum of treatments in your practice, you can offer optimal results by referring patients to colleagues after you've performed the procedures you offer." ❏

*Inga Hansen is a Los Angeles-based freelance writer.*

### SCAR DEVICE RESOURCES

Here are some of the companies marketing devices that our panel of doctors find useful in treating scars:

**Alma Lasers** Harmony, 877.256.2487, [almalasers.com](http://almalasers.com)

**Candela** Smoothbeam and VBeam, 800.668.2691, [candelalaser.com](http://candelalaser.com)

**DermaMed International** Derma Yag, 888.789.6342, [dermamedinternational.com](http://dermamedinternational.com)

**Dermaroller**, distributed by Grace Medical Equipment, 866.446.0234, [gracemedicalequipment.com](http://gracemedicalequipment.com)

**Genesis Biosystems** Regenlite Pulsed Dye Laser, 888.577.7335, [genesishbiosystems.com](http://genesishbiosystems.com)

**HOYA ConBio** RevLite and Medlite C6, 800.532.1064, [conbio.com](http://conbio.com)

**IRIDEX** Laserscope Venus, 800.388.4747, [iridex.com](http://iridex.com)

**MTS-Roller** Microneedle System 877.566.9687, [microneedle.com](http://microneedle.com)

**Palomar** Starlux, 800.725.6627, [palomarmedical.com](http://palomarmedical.com)

**Radiancy** Whisper NG Er:YAG, 888.661.2220, [radiancy.com](http://radiancy.com)

**Reliant Technologies** Fraxel 1550, 888.437.2935, [reliant-tech.com](http://reliant-tech.com)

**Sciton** Contour TRL, 888.646.6999, [sciton.com](http://sciton.com)