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Phenol peels vs CO_2 laser — both come out winners

Options available to eliminate or decrease patients' facial rhytides and imperfections give physicians a choice for success and satisfaction on a procedure well done.

By Lisette Hilton
Contributing Editor

This patient, in her early 60s, is shown before (left) and after a phenol chemical peel, which was performed three months following face, neck, and upper eyelid surgery.

Beverly Hills, Calif. — Once a gold standard, phenol peels have descended low on the totem pole of facial rejuvenation options. Still, there are those who believe that the power of the phenol peel is unmatched when it comes to deep wrinkles and severe sun damage.

Robert Kotler, M.D., a facial plastic surgeon and UCLA clinical instructor who practices in Beverly Hills, Calif., is a fan of the phenol peel. The author of *Chemical Rejuvenation of the Face* (Mosby), Kotler set out to find out just how the phenol peel stacks up against the laser.

Dr. Kotler

He teamed up with Manhattan Beach, Calif.-based board-certified dermatologist Lawrence Moy, M.D., to study the differences. Dr. Moy is chief of the division of dermatology at University of California, Los Angeles. Unlike Dr. Kotler, Dr. Moy uses the laser for skin resurfacing and not the phenol peel.

The resulting paper, "The Histologic Evaluation of Pulsed Carbon Dioxide laser Resurfacing vs. Phenol Chemical Peels in Vivo," was published August 1999 in *Dermatologic Surgery*.

The purpose of the study, according to Dr. Kotler, was to compare the histologic effects of phenol chemical peels and CO_2 laser ablations under the microscope.

"We asked ourselves what is really happening to the skin and can we compare under the microscope the effects of treating the skin with the laser and with phenol chemical?" he said. "This is a very good clue in terms of what the result [of each procedure] will be and the longevity [of each]."

The researchers studied human volunteers who were good candidates for the laser and phenol peel. They performed biopsies on each patient, in front of their ears. For variety, the physicians changed the laser settings and peel concentrations. They used the CO_2 laser and the Baker-Gordon phenol mixture.

The researchers performed biopsies, again, three months later.

"It is significant at three months because, typically, whatever has happened in terms of the restructuring of the skin with new collagen and elastic fibers is obvious at three months," Dr. Kotler said.

The study included five patients. The pathologist interpreting the biopsies was an outside pathologist, who was unaware of which biopsies were from the peel and which were from the laser volunteers.

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What the researchers learned was that the CO_2 laser produced a thinner layer of new collagen than phenol. The theory is: the thicker the layer of collagen, the longer the life span of the process and the greater the overall tightening effect.

Healing time was shorter with the laser, which correlates with the first conclusion in terms of the laser not producing as thick a layer of new collagen. The skin was

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This 69-year-old patient is shown before undergoing various procedures (left). At right, she is seen six months after face, neck, and upper and lower eyelid surgery, and chemical facial rejuvenation. The peel was performed three months following the other procedures. (All photographs provided courtesy of Robert Kotler, M.D., F.A.C.S.)

Peels vs laser

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not damaged as much with the laser and both processes rely on damage to the skin.

"If there were less damage to the skin there would be quicker healing. But the flip side is that less damage to the skin also means less stimulation for new collagen formation and, therefore, quantitatively less new collagen formation," Dr. Kotler said.

Among other corollary observations were: The strength or intensity of laser treatment has more variation. One can vary the intensity of the beam, the duration of beam treatment to the skin, and the number of passes of the beam. One has a greater assortment of treatment strengths with the laser. The phenol peel does not offer this variation. Once it is on, it is out of the physician's control.

For the perfect candidate for the [phenol peel] — meaning, someone who has light skin with little chance of pigmentary changes, blue or green eyes, and blonde hair — there is not much downside to the phenol peel.

This proves, Dr. Kotler said, that the phenol peel has a place in skin rejuvenation. For the perfect candidate for the procedure — meaning, someone who has light skin with little chance of pigmentary changes, blue or green eyes, and blonde hair — there is not much downside to the phenol peel.

On the other hand, for someone who is not an ideal candidate, you need other options, according to Dr. Kotler. "That's where the laser treatment comes in. You can vary the strength and intensity and therefore the amount of wounding to the skin to a greater degree."

Dr. Kotler, who has a cosmetic practice, said he generally prefers the phenol peel over the laser. However, he noted that he has to be more stringent in his patient selection for phenol peels.

He said results from the peel last longer. He surmises that it is because the phenol peel destroys more tissue, causing more repair with good, strong repair tissue. Many of his patients who had peels 14 to 15 years ago, have yet to undergo repeat procedures.

"The flip side is that it takes longer for healing. Everything is more — more intensity, more discomfort probably. There's a longer time for red coloring and a longer time before patients can go out into the real world," he said.

At 48-years-old, this patient underwent a phenol chemical peel only (bottom), with no additional surgery.

While this study demonstrated a comparison between the two procedures, no study can compare apples to apples when it comes to laser skin resurfacing and phenol peels. The phenol peel has been around for over 40 years; the laser for about five. Laser technology is constantly evolving, while the peel process has stayed relatively unchanged. "Last time I counted, there were 60 different lasers available," he said.

Dr. Kotler explained that the phenol peel offers certain advantages that have been forgotten amid the race for new technology.

"It has become a somewhat forgotten procedure because there has not been a doctor taste for it. It's very 'low tech;' it does not require surgical skills. Historically, it has even been performed by lay people. Nonetheless, for the right patient, the results can be quite something," said Dr. Kotler.

Further, phenol does not deserve the reputation of being 'dangerous,' he said. "When performed on a properly selected patient by a well trained practitioner, in a proper setting, it's no more dangerous than any surgical procedure we do," he said. CST

For more information

■ Moy LS, Kotler R, Lesser T. The histologic evaluation of pulsed carbon dioxide laser resurfacing versus phenol chemical peels in vivo. *Dermatol Surg* 1999 Aug;25:597-600.